Opasraportti

Open University - Natural sciences, mathematics and statistics (2020 - 2021)

Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

790342A: Advanced course in GIS, 5 op
802355A: Algebraic Structures, 5 op
ay740157P: Basic biochemistry 1: Biomolecules (OPEN UNI), 4 op
ay740153P: Basic biochemistry 2: Methods (OPEN UNI), 2 op
ay740158P: Basic biochemistry 3: Metabolis (OPEN UNI), 4 op
802354A: Basics in Algebra, 5 op
750124P: Basics of ecology, 5 op
740151P: Biochemical methodologies I, 10 op
750173P: Biogeography, 5 op
740148P: Biomolecules, 5 op
766382A: Climate communication, 2 op
766383A: Climate.Now, 2 - 5 op
757109P: Concepts of genetics, 5 op
756347A: Conservation of biodiversity, 5 op
755320A: Developmental biology-histology, 5 op
790101P: GIS-basics and Cartography, 5 op
790322A: Geographical Information and Research, 5 op
790340A: Geographies of global development, 5 op
765308A: History of astronomy, 5 op
ay765308A: History of astronomy (OPEN UNI), 5 op
ay740159P: Introduction to Biochemistry (OPEN UNI), 2 op
802336A: Introduction to Cryptography, 5 op
802120P: Introduction to Matrices, 5 op
790141P: Introduction to Regional Development and Regional Policy, 5 op
806118P: Introduction to Statistics, 5 op
806113P: Introduction to Statistics, 5 op
ay806118P: Introduction to Statistics (OPEN UNI), 5 op
790160P: Introduction to Tourism Geography, 5 op
750122P: Introduction to cell biology and physiology, 5 op
Compulsory
750122P-01: Introduction to cell biology and physiology, genetics, 0 op
750122P-04: Introduction to cell biology and physiology, animal physiology, 0 op
750122P-03: Introduction to cell biology and physiology, plant cell biology, 0 op
750122P-02: Introduction to cell biology and physiology, animal cell biology, 0 op
802151P: Introduction to mathematical deduction, 5 op
ay802150P: Introduction to mathematical deduction (OPEN UNI), 2 op
ay802151P: Introduction to mathematical deduction (OPEN UNI), 5 op
790104P: Introduction to systematic Human Geography, 5 op
790152P: Introduction to the discipline of Geography, 5 op
790102P: Introduction to the systematic Physical Geography, 5 op
761115P: Laboratory Exercises in Physics 1, 5 op
Compulsory

761115P-01: Laboratory Exercises in Physics 1, lecture and exam, 0 op
761115P-02: Laboratory Exercises in Physics 1, laboratory exercises, 0 op
ay740160P: Life at small scale (OPEN YO), 2 op
ay752316A: Macro fungi (OPEN UNI), 3 op
ay802158P: Mathematics for Economic Sciences (OPEN UNI), 7 op
766101P: Mathematics for physics, 5 op
761118P: Mechanics 1, 5 op
740149P: Metabolism I, 4 op
790346A: Nature conservation: a geographic perspective, 5 op
791635A: Physical Geography of Fennoscandia, 5 op
761108P: Physical world view, 5 op
756346A: Plant biology lectures, 5 op
766116P: Radiation physics, biology and safety, 5 op
790106A: Region, culture and society, 5 op
790603S: Special research course in Geoinformatics, 5 op
790350A: Special themes in Regional Development and Regional Policy, 5 op
ay790329A: Sustainable development and environmental change, 2 op
766381A: Sustainable.now, 5 op
ay740155P: Targeting climate change on individual level (OPEN UNI), 2 op
790320A: Tourism planning and development, 5 op
790161A: Tourism, development and sustainability, 5 op
761310A: Wave motion and optics, 5 op
790349A: World regional geography, 5 op

Opintojaksojen kuvaukset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset

790342A: Advanced course in GIS, 5 op

Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Field of Geography
Arvostelu: 1 - 5, pass, fail
Opettajat: Harri Antikainen
Opintokohteen kielet: Finnish
Voidaan suorittaa useasti: Kyllä

ECTS Credits:
5 ECTS
Language of instruction:
Finnish.
Timing:
2nd year, 1st semester (1st period).
Learning outcomes:
The student knows the most essential analyses and methods of the GIS and is able to apply them independently in different research phases. In addition, the student manages the basis of the ArcGIS program and knows the most common types of the data of geographical information.
Contents:
Most central GIS methods by ArcGIS program in human and physical geography.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:

25 h practicals. Independent practical work.
Target group:
Common course to all students of Geography. GIS and Geography -minor students.
Prerequisites and co-requisites:
Course 790101P, GIS basics and cartography (or corresponding studies)
Recommended optional programme components:
Course is part of minor studies of GIS and Geography.
Recommended or required reading:
Antikainen, H., Määttä-Juntunen, H. ja Ujanen, J. (2014). GIS-jatkokurssi. Opetusmoniste. (In Finnish).
Assessment methods and criteria:
Preparation of the practicals and seminar work.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Harri Antikainen
Working life cooperation:
No.

802355A: Algebraic Structures, 5 op

Voimassaolo: 01.08.2010 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Mathematics

Arvostelu: 1 - 5, pass, fail

Opettajat: Kari Myllylä

Opintokohteen kielet: Finnish

Leikkaavuudet:

800333A Algebra I 8.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
Second year, 1. period
Learning outcomes:
After completing the course, student is able to:

- derive and proof main results in the course
- use and apply different proof techniques
- recognize algebraic structures and the concepts
- see connections and differences between different algebraic structures

Contents:
The course introduces algebraic structures, such as rings, subrings, ideals, integral domains, fields and finite fields. The course gives an understanding of algebraic terms and concepts used in mathematics and physics.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
28 h lectures, 14 h exercises
Target group:
Major students
Prerequisites and co-requisites:
802354A Basics in Algebra
Recommended optional programme components:
-
Recommended or required reading:
Lecture notes
Assessment methods and criteria:

Final exam
Grading:
1-5, fail
Person responsible:
Kari Myllylä
Working life cooperation:
-

ay740157P: Basic biochemistry 1: Biomolecules (OPEN UNI), 4 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Henrika Honkanen
Opintokohteen kielet: Finnish
Leikkaavuudet:

ay740152P	Basic biochemistry 1: Biomolecules (OPEN UNI)	5.0 op
740143P	Biomolecules for Biochemists	8.0 op
740147P	Biomolecules for Bioscientists	8.0 op
740148P	Biomolecules	5.0 op

Ei opintojaksokuvauksia.

ay740153P: Basic biochemistry 2: Methods (OPEN UNI), 2 op

Voimassaolo: 01.08.2019 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Henrika Honkanen
Opintokohteen kielet: Finnish
Leikkaavuudet:

740151P	Biochemical methodologies I	10.0 op
740144P	Biochemical Methodologies I	8.0 op

ay740158P: Basic biochemistry 3: Metabolis (OPEN UNI), 4 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Henrika Honkanen
Opintokohteen kielet: Finnish

Leikkaavuudet:

ay740154P	Basic biochemistry 3: Metabolis (OPEN UNI)	3.0 op
740149P	Metabolism I	4.0 op
740146P	Metabolism I	6.0 op

802354A: Basics in Algebra, 5 op

Voimassaolo: 01.08.2010 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Field of Mathematics
Arvostelu: 1 - 5, pass, fail
Opettajat: Kari Myllylä
Opintokohteen kielet: Finnish
Leikkaavuudet:

ay802354A	Number Theory and Groups (OPEN UNI)	5.0 op
800333A	Algebra I	8.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
1. year, 3. period
Learning outcomes:
After completing the course, student is able to:

- derive and proof main results in the course
- use and apply different proof techniques
- recognize algebraic structures and the concepts
- see connections and differences between different algebraic structures

Contents:
The course includes basics in arithmetics and algebraic structures, such as, congruence, residue classes, prime numbres, Euclidean algorithm, the fundamental theorem of arithmetic, Euler-Fermat formula, groups and morphisms. The course gives an understanding of
algebraic terms and concepts used in mathematics and physics.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
28 h lectures, 14 h exercises
Target group:
Major and minor students
Prerequisites and co-requisites:
802151P Introduction to mathematical deduction
Recommended optional programme components:
-
Recommended or required reading:
Lecture notes
Assessment methods and criteria:
Final exam
Grading:
1-5, fail
Person responsible:
Kari Myllylä
Working life cooperation:
-

750124P: Basics of ecology, 5 op

Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Seppo Rytkönen
Opintokohteen oppimateriaali:
Krebs, Charles J. , , 2001
Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.Sc. 1 st spring.
Learning outcomes:
After completion of the course both biology and minor studies students understand better function of nature and the ecological phenomena in individual, population, community and ecosystem level.
Contents:
The course gives a student a basic idea about ecological interactions in individual-, population-, community- and ecosystem levels. In individual level the focus is on environmental demands of plants and animals. In population level the birth- and death rate of age groups and their effect on population growth is focused. In interactions between different species the emphasis is on how the competition between species leads to differentiation of niches. Predation is viewed as the regulatory effect on the population dynamics of prey populations. In community level the biodiversity and the patterns of succession are the main questions. In ecosystem level the emphasis is on energy flows and nutrient cycling. Evolution and adaptation are important in different fields of ecology.
Mode of delivery:
Face-to-face teaching. Moodle excersises.
Learning activities and teaching methods:
The course is based on the course book Manuel C. Molles Jr. & Anna A. Sher 2018. Ecology: concepts and applications (8. ed), lectures describing the major sections of the book, and the Moodle exercises based on the book. After each lecture, a new Moodle-exercise will open (in ca. 2 week-intervals). Assessment is based on the success in the Moodle-exercises. There is no final exam in the course.
Target group:
Compulsory biology students.
Prerequisites and co-requisites:
No.
Recommended optional programme components:
-
Recommended or required reading:
Manuel C. Molles Jr. & Anna A. Sher 2018. Ecology: concepts and applications (8. p).
The availability of the literature can be checked from this link.
Assessment methods and criteria:
Passing the course demands passing all the Moodle-exercises in the given time. Assessment is based on the success in the Moodle-exercises.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Numerical grading scale 0 – 5, where 0 = fail.
Person responsible:
Doc. Seppo Rytkönen.
Working life cooperation:
No.
Other information:
-

740151P: Biochemical methodologies I, 10 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Faculty of Biochemistry and Molecular Medicine

Arvostelu: 1 - 5, pass, fail

Opettajat: Kaija Autio

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay740153P	Basic biochemistry 2: Methods (OPEN UNI)	2.0 op
ay740144P	Biochemical Methodologies I (OPEN UNI)	8.0 op
740144P	Biochemical Methodologies I	8.0 op

Voidaan suorittaa useasti: Kyllä

ECTS Credits:
10 credits
Language of instruction:
Lectures: Finnish, laboratory practicals: English
Timing:
B.Sc. yr1 autumn (lectures), yr1 spring (laboratory practicals)
Learning outcomes:
Upon succesful completion students are able to:

- use basic methods used in biochemical research laboratory
- Use laboratory equipment and work safely
- Prepare solutions used in the lab
- document and present experiments and results in the laboratory and other works

Contents:
This module covers the basic methodologies used in practical biochemistry. The following topics will be addressed: safety in the laboratory, qualitative and quantitative observations, the calculations of concentrations and dilution factors (includes a workshop), pipette cleaning and calibration, identification and quantification of biological molecules, principals and practice of the use of centrifuges, spectrophotometry, SDS-PAGE, agarose gel electrophoresis, thin-layer and paper chromatography, basics of protein purification, extraction of chromosomal DNA from bacteria, mini-prep extraction of plasmid DNA, extraction of RNA from mammalian tissue, sterile technique, basic microbial growth, dialysis, filtration and pH measurement. In addition transferable skills like word processing (Microsoft Word) and spreadsheet (Microsoft Excel), drawing of curve charts, the basics of oral presentation, ethics in scientific research and good scientific practice are involved.
Mode of delivery:
Face to face teaching
Learning activities and teaching methods:
34 h lectures and exercises, 120 h lab. Laboratory work is compulsory. It is possible to complete lecture part only (3.5 ECTS).
Target group:
Major students
Prerequisites and co-requisites:
Biomolecules, Biomolecules for Biochemists tai Biomolecules for Bioscientists
Recommended optional programme components:
-
Recommended or required reading:
Recommended reading: Reed, Holmes, Weyers & Jones: Practical skills in biomolecular sciences, 4th edition, Pearson, 2013.
You can check the availability of the course books via this link
Assessment methods and criteria:
Continuous assessment (home works, lab reports), final exam
Grading:
1-5/fail
Person responsible:
Kaija Autio
Working life cooperation:
No
Other information:
Location of instruction: lectures (in Finnish) at Linnanmaa campus, laboratory practicals at Kontinkangas campus

750173P: Biogeography, 5 op

Voimassaolo: 01.08.2019 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Kvist, Laura Irmeli
Opintokohteen kielet: Finnish
Leikkaavuudet:

750373A Biogeography 5.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.Sc. 1st autumn.
Learning outcomes:
The course introduces students to basic concepts of biogeography, patterns of distribution and historical and present factors affecting the distribution. The student will have an understanding also of how human impact changes distributions and how the Finnish biota has been formed.
Contents:
The course introduces basic models and theories of distribution of organisms in the environment, offering historical, evolutionary, geographical, climatic and ecological explanations. It also introduces research methods used in biogeography and offers understanding on human impact on distributions and a special part of distributions of biota in Finland.
Mode of delivery:
Face-to-face teaching.
Learning activities and teaching methods:
34 h lectures, independent work (3 cr, a learning diary), exam.
Target group:
BSc: Compulsory for biology students.
Prerequisites and co-requisites:
No.
Recommended optional programme components:
Other recommended courses related to the field: Basics of Ecology (750124P), Evolution and systematics of organisms (750372A) and Evolution, systematics and morphology of organisms, practicals (750374A)
Recommended or required reading:
Cox, C.B. & Moore, P.D. 2005: Biogeography. An ecological and evolutionary approach (7 ed.), Blackwell Publishing Ltd, tai Cox, C.B. & Moore, P.D. 2010: Biogeography. An ecological and evolutionary approach (8 ed.), John Wiley & Sons Inc. Eurola, S. 1999: Kasvipeitteemme alueellisuus. Oulanka Reports. Oulu. 116 s.
The availability of the literature can be checked from this link.
Assessment methods and criteria:
Exams. Read more about assessment criteria at the University of Oulu webpage.
Grading:
Numerical grading scale 0 – 5, where 0 = fail. Final grade is average value of the two exams.
Person responsible:
Doc. Laura Kvist.
Working life cooperation:
No.
Other information:
-

740148P: Biomolecules, 5 op

Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Faculty of Biochemistry and Molecular Medicine
Arvostelu: 1 - 5, pass, fail
Opettajat: Tuomo Glumoff
Opintokohteen kielet: English
Leikkaavuudet:

ay740157P	Basic biochemistry 1: Biomolecules (OPEN UNI)	4.0 op
ay740152P	Basic biochemistry 1: Biomolecules (OPEN UNI)	5.0 op
740143P	Biomolecules for Biochemists	8.0 op
740147P	Biomolecules for Bioscientists	8.0 op

ECTS Credits:
5 credits
Language of instruction:
English and Finnish
Timing:
autumn
Learning outcomes:
Upon successful completion students are able to:

- tell the composition, structure and function of the major groups of biomolecules in cells; nucleic acids, proteins, carbohydrates and lipds and describe the forces that modulate their function.
- apply information in the right context and evaluate it critically

Contents:
This module provides an overview of biochemistry, outlining the forces involved in biomolecule structure and the chemical structures and properties of polynucleic acids, proteins, carbohydrates and lipids. There will also be an introduction to prebiotic evolution and writing of a synopsis on this subject. The module is arranged into lectures or workshops, and writing the synopsis. All of the course materials are in English, but both English and Finnish are used in teaching. Both a final examination and continuous assessment will count towards the final mark.
Mode of delivery:
Face to face teaching
Learning activities and teaching methods:
30 h lectures, plus exercises
Target group:
Minor subject students
Prerequisites and co-requisites:
-
Recommended optional programme components:
-
Recommended or required reading:
Appling et al. Biochemistry – Concepts and Connections (2nd edition, 2019) Pearson Education Limited; ISBN 10: 1-292-26720-8, or equivalent
Assessment methods and criteria:
Continuous assessment, final examination

Grading:
1-5/fail
Person responsible:
Tuomo Glumoff
Working life cooperation:
No
Other information:
This module is the same as Biomolecules for Biochemists except that it contains no practical component. Location of instruction: Linnanmaa campus

766382A: Climate communication, 2 op

Voimassaolo: 01.01.2020 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish, English

ECTS Credits:
2 ECTS credits / 54 h of work
Language of instruction:
Finnish
Timing:
period 3
Learning outcomes:
Upon completion of the course, the student will be able to:

- understand what are the different forms of climate change communication.
- identify and discuss things that make climate communication
  a) important, b) challenging
- understand what affects the recipients and messengers of climate change information
- critically analyse climate change messages.

Contents:
Getting to understand the different forms of climate communication, factors affecting it, the challenges and keys to impactful communication about climate change.
Mode of delivery:
Web-based teaching, possibly blended
Learning activities and teaching methods:
Studying the course material independently 20 h, assignments 10 h, peer communication and review 10 h, project work 8 h, contact teaching 6 h
Target group:
To anyone interested in the theme.
Prerequisites and co-requisites:
No prerequisites, but it is recommended to do / have done the Climate.now course.
Recommended or required reading:
The course material has been created under DigiCampus.
Assessment methods and criteria:
The assignments in the DigiCampus material are controlled with peer review. The project work has to be completed so that the determined criteria are met.
Grading:
Pass / Fail
Person responsible:
Mira Hulkkonen
Working life cooperation:
No working life cooperation.

766383A: Climate.Now, 2 - 5 op

Voimassaolo: 01.01.2019 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opettajat: Jussi Malila

Opintokohteen kielet: English, Finnish

Leikkaavuudet:

ay766386A	Climate.Now (OPEN UNI)	2.0 op
766683S	Climate.Now	5.0 op
ay766383A	Climate.Now (OPEN UNI)	2.0 op

ECTS Credits:
2 ECTS credits / 54 hours of work
Language of instruction:
Finnish
Timing:
The course is held in the autumn semester, during periods 1 and 2.
Learning outcomes:
Upon completion of the course, student can:
- look at climate change from many different perspectives and create connections between them as well as look for solutions to the climate challenge in a variety of ways
- reflect her or his own role in climate change and apply what has been learned on the course to her or his field of study
- examine different perspectives, solutions, information sources, and the current debate on climate change critically.
Contents:
Scientific basis of climate change, mitigation of climate, change, effects of climate change and adaptation.
Mode of delivery:
Web-based teaching
Learning activities and teaching methods:
Studying online material and independent study 46 h, learning task 8 h.
Target group:
All students.
Prerequisites and co-requisites:
No prerequisities required.
Recommended optional programme components:
No simultaneous studies.
Recommended or required reading:
Material at DigiCampus, Moodle page of the course.
Assessment methods and criteria:
Course grading is based on the learning task.
Grading:
The course utilizes a numerical grading scal 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Jussi Malila
Working life cooperation:
The course does not contain working life cooperation.

757109P: Concepts of genetics, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Heikki Helanterä

Opintokohteen kielet: Finnish

Leikkaavuudet:

757122P	Concepts of genetics for biochemists	3.0 op
753124P	General genetics	4.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.Sc. 1st spring.
Learning outcomes:
To understand and apply basic concepts of genetics, at Mendelian and molecular level.
Contents:

Part 1. Mendelian genetics, including the basics of quantitative and population genetics. Part 2. Molecular genetics: replication, transcription, translation, genetic code, mutations, repair of DNA. Part 3. Selected topics on developmental genetics, and genetics of health and diseases.
Mode of delivery:
Face-to-face teaching.
Learning activities and teaching methods:
36 h lectures and seminars, 97 h independent studies, exam.
Target group:
Compulsory to the biology students (5 cr) Biochemistry students: parts 1 and 3 (3 cr) compulsory.
Prerequisites and co-requisites:
Introduction to cell biology and physiology (750122P) or equivalent knowledge.
Recommended optional programme components:
This course is prerequisite to all other genetics courses.
Recommended or required reading:
Home work assignments in Moodle. Klug et al. 2012. Concepts of Genetics (11. ed). Pearson, 896 p. Alberts, B. et al. 2008: Molecular Biology of the Cell (5. ed). Garland Science Publishing, London, 1268 p.
The availability of the literature can be checked from this link.
Assessment methods and criteria:
Homeworks, home exams, lecture diary, exams.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Numerical grading scale 0 – 5, where 0 = fail.
Person responsible:
Assoc. Prof. Heikki Helanterä.
Working life cooperation:
No.
Other information:
-

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: Kari Koivula

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:
BSc 3rd spring; M.Sc. ECOGEN. Even years.
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:
28 h lectures, literature, exam.
Target group:

ECOGEN students (code S). Other studies (code A).
Prerequisites and co-requisites:
No
Recommended optional programme components:
-
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:
Numerical grading scale 0 – 5, where 0 = fail.
Person responsible:
Doc. Kari Koivula
Working life cooperation:
No.
Other information:
-

755320A: Developmental biology-histology, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Veli-Matti Pakanen, Lumi Viljakainen

Opintokohteen kielet: Finnish

Leikkaavuudet:

751367A Developmental biology-histology, lectures 4.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.Sc. 1st spring.
Learning outcomes:
After completing the developmental biology -part of the course the student is able to name the most important events of embryonic development and the structural changes related to them. The student is also able to describe the principles gene regulation related to embryonic development. After completing the histology-part of the course the student is able to describe the various tissue types and the microscopic structure of important organs and is also able to identify tissue types and organs from microscopic sections.
Contents:
“It is not birth, marriage, or death, but gastrulation, which is truly the most important time in your life.” (Lewis Wolpert, 1986). Developmental biology will cover forming of embryonic tissue layers (gastrulation), embryonic induction, signal molecules and the differentiation of the most important tissues and organs (organogenesis). Histology will first cover various tissue types, their cell types and matrix composition. Thereafter, the microscopic structure and tissue composition of various organs and organ systems will be covered.
Mode of delivery:
Distance learning, in Moodle.
Learning activities and teaching methods:
Lecture videos, exercises, virtual microscopic preparates, independent working on virtual microscope, identification of different tissue types on histologic preparates.
Target group:

Compulsory to BS students. Optional to ECO and TEA.
Prerequisites and co-requisites:
Introduction to cell biology and physiology (750122P) or equivalent knowledge.
Recommended optional programme components:
-
Recommended or required reading:
video lecture, material in Moodle, Recommended reading: Scott Gilbert, Developmental Biology 10th ed, Sinauer Associates.Inc.U.S. (or older), Sariola, Frilander ym., Solusta yksilöksi: Kehitysbiologia, Duodecim, Helsinki 2003; Gilbert: Developmental Biology, Sinauer Press, 6.ed. 2000, or newer; Young & Heath: Wheater's Functional Histology, Churchill Livingstone, 4. ed. 2000, or newer.
The availability of the literature can be checked from this link.
Assessment methods and criteria:
1 exam in developmental biology, 4-5 exams in histology.
Read more about assessment criteria at the University of Oulu webpage.

Grading:
Numerical grading scale 0 – 5, where 0 = fail.
Person responsible:
Doc. Lumi Viljakainen.
Working life cooperation:
No.
Other information:
-

790101P: GIS-basics and Cartography, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Harri Antikainen

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790101P GIS-basics and Cartography (OPEN UNI) 5.0 op

Voidaan suorittaa useasti: Kyllä

ECTS Credits:
5 ECTS
Language of instruction:
Finnish, partly in English. English speaking students are asked to contact the teacher before the course.
Timing:
1 year, Spring semester (3rd period).
Learning outcomes:
Course gives basic information about Geographical Information System and about the theory of cartography. After the course the student can use ArcGIS program and he/she is able to produce cartographic presentations.
Contents:
Basics of GIS, theories of cartography and statistical graphics and use of ArcGIS program.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
16 h lectures, 48 h practicals.
Target group:
Common course to all 1st year students of Geography. Students minoring in Geography and GIS. Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of the minor studies of GIS and geography.

Assessment methods and criteria:
Based on independent work and assignments.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Harri Antikainen
Working life cooperation:
No
Other information:
English speaking students are asked to contact Harri Antikainen before the course.

790322A: Geographical Information and Research, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Eeva-Kaisa Prokkola, Paasi Anssi, Janne Alahuhta

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS
Language of instruction:
Finnish.
Timing:
1st year, 1st semester.
Learning outcomes:
The student will deepen his/her understanding about geographical information and research, and he/she will see the research as a part of society. The student will learn the correct practise in scientific researh and the principles of copyrights.
Contents:
Communication in science, modes, ethics and interests of georgaphy and science in general;ethical scientific pratices; ethichs of researcher; as well as stucture of a research paper

Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
12 hrs lectures, written exam.
Target group:
Common course to all 1st year students of Geography. Course is also part of minor studies in geography.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies in geography (60 ECTS cr).
Recommended or required reading:
To be announced later
Assessment methods and criteria:
Exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1-5.
Person responsible:
Janne Alahuhta, Anssi Paasi and Eeva-Kaisa Prokkola
Working life cooperation:
No.

790340A: Geographies of global development, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790340A Geographies of global development (OPEN UNI) 5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Finnish or English.
Timing:
2nd or 3rd year, 1st or 2nd semesters (autumn or spring semesters).
Learning outcomes:
This course gives knowledge of global development problems from geographical point of view. After the course the student can explain what development indicates and what kind of social and economic phenomena will explain both development and under development. He/she is also able to compare different actions that are aimed to diminish the uneven development based on different theories and strategies.
Contents:
The course familiarizes students to the theories that aim to explain differences in uneven development. Under development, and its social, cultural and economic aspects will be studies from national, regional and local level. This course also quires to political programs and strategies that are aimed to stabiles equalizes uneven development.
Mode of delivery:
Book exam (no face to face teaching).
Learning activities and teaching methods:
Book exam.
Target group:
Geography students, especially teachers. Students minoring in Geography and Basic Studies in Environmental Conservation.
Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies of Geography and Basic Studies in Environmental Conservation.
Recommended or required reading:
- Potter, R.B.T, T. Binns, J.A.Elliot & D.Smith (2004). Geographies of development.

Assessment methods and criteria:
Exam on examinarium.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Juha Ridanpää
Working life cooperation:
No.

765308A: History of astronomy, 5 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay765308A History of astronomy (OPEN UNI) 5.0 op

765107P Astronomical world view 5.0 op

765107P-02 Astronomical world view (part 2): History of astronomy 0.0 op
765106P History of astronomy 3.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work
Language of instruction:
Finnish
Timing:
1st - 3rd year
Learning outcomes:
Student has a general concept of the history of astronomy and the development of physical world view.
Contents:
Astronomy is the oldest exact science. On the other hand, it uses space telescopes and computer simulations. The stellar sky has been observed already in prehistory. Explaining planetary motions and other celestial phenomena has been in central role in the development of physical theories, and the revelation of the cosmic scale has deeply shaped our world view. The history of astronomy has an important role in the discussions on the history and philosophy of science. Art and popular culture have also been inspired by astronomical phenomena.
Target group:
All students
Prerequisites and co-requisites:
None
Assessment methods and criteria:
Book exam
Grading:
Numerical grading scale 0-5, where 0=fail
Person responsible:
Heikki Salo
Working life cooperation:
No work placement period

ay765308A: History of astronomy (OPEN UNI), 5 op

Voimassaolo: 01.08.2017 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opintokohteen kielet: Finnish
Leikkaavuudet:

765308A History of astronomy 5.0 op

Ei opintojaksokuvauksia.

ay740159P: Introduction to Biochemistry (OPEN UNI), 2 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Henrika Honkanen
Opintokohteen kielet: Finnish

802336A: Introduction to Cryptography, 5 op

Voimassaolo: 01.06.2016 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Field of Mathematics
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: Finnish
Leikkaavuudet:

ay802136P	Introduction to Cryptography	2.0 op
ay802336A	Introduction to Cryptography (OPEN UNI)	5.0 op
801346A	Introduction to Cryptography	4.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
2nd year or later, every period and twice in the summer
Learning outcomes:
After completeing the course, student:
- knows the principles of sime traditianl symmetric key methods
- knows how public key methods (RSA, discrete logarithm, knapsack) work
- is familiar with the possibility to use and apply number theory in cryptography
Contents:
The course considers some traditional symmetric key methods (affine system, matrix cryptography) and three public key methods, namely RSA, discrete logarithm and knapsack.
Mode of delivery:
Independent work
Learning activities and teaching methods:
Net course; Lecture slides, exercisis, solutions of exercisis (in Moodle) + stack-exercisis
Target group:
Major and minor students
Prerequisites and co-requisites:
802354A Basics of Algebra, 802120P Introduction to Matrices
Recommended optional programme components:
-
Recommended or required reading:
Lecture slides, exercisis, solutions of exercisis, stack-exercisis
Assessment methods and criteria:
Final exam or Final exam + stack-exercisis
Grading:
1-5, fail
Person responsible:
Marko Leinonen
Working life cooperation:
No

802120P: Introduction to Matrices, 5 op

Voimassaolo: 01.06.2015 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Mathematics
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: Finnish
Leikkaavuudet:

802118P Linear Algebra I 4.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
1. year, 4. period
Learning outcomes:
After completing the course the student is able to:
- apply arithmetic operations of matrices
- solve system of linear equations by matrix methods
- study linear depence and linear indepence of vectors
- recognize the subspace of R^n and understands the concepts of basis and dimension of a vector space
- analyse matrices by the parameters and the vectors
Contents:
Vectors and matrices, Systems of linear equations, determinant of a matrix, subspaces of R^n, linear depence and linear indepence of vectors, base, dimension, eigenvalues and eigenvectors of a matrix, diagonalization, LU - factorization of a matrix.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 28 h, Exercises 14 h
Target group:
Major and minor studies
Prerequisites and co-requisites:
802151P Introduction to Mathematical Deduction
Recommended or required reading:
Lecture notes.
Grossman, S.I. : Elementary Linear Algebra, David C. Lay: Linear Algebra and Its Applications.
Assessment methods and criteria:
Final exam
Grading:
Fail, 1-5
Person responsible:
Marko Leinonen
Working life cooperation:
-

790141P: Introduction to Regional Development and Regional Policy, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Eeva-Kaisa Prokkola

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790141P Introduction to planning geography (OPEN UNI) 5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Lectures in Finnish. Exchange students can take this course by taking the exam (extra literature for exchange students).
Timing:
1st year, autumn semester (1st period).
Learning outcomes:

The student is able to apply the most essential concepts of regional development and regional policy. He/she can tell the main issues, dynamics and historical progress of regional development, regional policy and regional planning of Finland and its relationship to contemporary development of European Union and at the global scale.
Contents:
Regional development and regional policy from conceptual and empirical aspects; Theories and mechanisms of RD and RP; Local, national and international development based on regional planning.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
20 hrs lectures, literature and written exam, midterm exam.

Target group:
Common course to all 1st year students of Geography. Course is part of minor studies in Geography and minor studies of Regional Development and regional planning. Exchange students can take this course by taking the exam (extra literature for exchange students).
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies in Geography and minor studies of Regional development and regional planning.
Recommended or required reading:
A collection of articles (to be announced later)
Assessment methods and criteria:
Exam, midterm exam
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1-5.
Person responsible:
Eeva-Kaisa Prokkola
Working life cooperation:
No.
Other information:
Exchange students should contact the teacher before registration.

806118P: Introduction to Statistics, 5 op

Voimassaolo: 01.06.2015 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Mathematics

Arvostelu: 1 - 5, pass, fail

Opettajat: Jari Päkkilä

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay806118P	Introduction to Statistics (OPEN UNI)	5.0 op
806113P	Introduction to Statistics A	5.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
3rd period
Learning outcomes:
After completing the course, student will be able to:
- consider issues influencing to data collection
- describe data by appropriate methods (tables, statistics and graphical presentations)
- evaluate the effect size of the sample to the margin of error for instance in Gallup polls and in different market researches
- interpret output of a statistical software.
Contents:

- collecting data, e.g. sampling
- variables and measuring
- descriptive statistical methods and their selection
- margin of error of estimator for population mean and proportion
- statistical literacy
- basic analysis of data using statistical software

Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Total 50 h face-to-face teaching including lectures and exercise (partly computer exercises). Independent work 83 h.
Target group:
Minor students
Recommended optional programme components:
After the course, student is able to continue to A Second Course in Statistics.
Recommended or required reading:
Lecture notes
Assessment methods and criteria:
Mid-term exams and/or final exam and possible homework.
Grading:
Fail, 1-5
Person responsible:
Hanna Heikkinen and Jari Päkkilä
Working life cooperation:
No

806113P: Introduction to Statistics, 5 op

Voimassaolo: 01.01.2011 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Mathematics

Arvostelu: 1 - 5, pass, fail

Opettajat: Hanna Heikkinen

Opintokohteen oppimateriaali:
Wild, Christopher J. , , 2000
Grönroos, Matti (2) , , 2003

Opintokohteen kielet: Finnish

Leikkaavuudet:

806118P	Introduction to Statistics	5.0 op
806119P	A Second Course in Statistics	5.0 op
806116P	Statistics for Economic Sciences	5.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
4th period. Students of mathematics and physics: 1st year of studies.
Learning outcomes:
Upon completion of the course, student will be:
- able to identify and define the main principles of statistical research, collection of the data and analysis
- able to apply basic methods of descriptive statistics and statistical inference in simple quantitative research using a statistical software
- able to critically evaluate results of the statistical research presented in media
- prepared for teaching statistics in secondary school and high school
- prepared for participating in a group.

Contents:

- the nature and the meaning of statistics
- data and the acquisition of them: observations, variables, measuring and designs of a study
- the descriptive statistics of empirical distributions: tables, graphical presentations and descriptive measures of center, variation and dependence
- the most important probability distributions
- the principles and the basic methods of statistical inference: random sample, sample statistics, point estimation, confidence intervals and statistical testing of hypotheses.

Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 16 h, instructed group work 26-28 h, independent study 89 h. Groups return their group tasks. Additional independently implemented learning tasks. Independent study includes also preparation for group work.
Target group:
Students of mathematical and physical sciences. Students of other degree programmes: 806118P, 806119P
Prerequisites and co-requisites:
The recommended prerequisite prior to enrolling for the course is the completion of the courses: 802151P Introduction to mathematical deduction and 800119P Functions and limit.

Recommended optional programme components:
After the course, student is able to continue other statistics courses.
Recommended or required reading:
Lecture notes.
Assessment methods and criteria:
This course utilizes continuous assessment. Practical works and learning tasks (including e.g. learning diaries and web tests) are assessed weekly. The assessment of the course is based on the learning outcomes of the course. The more detailed assessment criteria will be available in the beginning of the course.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
The course utilizes a numerical grading scale 1-5. In the numerical scale zero stands for a fail.
Person responsible:
Hanna Heikkinen
Working life cooperation:
No

ay806118P: Introduction to Statistics (OPEN UNI), 5 op

Voimassaolo: 01.08.2019 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: University of Oulu, Open University

Arvostelu: 1 - 5, pass, fail

Opetus suunnattu: University of Oulu, Open University

Opintokohteen kielet: Finnish

Leikkaavuudet:

806118P Introduction to Statistics 5.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
3rd period
Learning outcomes:
After completing the course, student will be able to
- consider issues influencing to data collection
- describe data by appropriate methods (tables, statistics and graphical presentations)
- evaluate the effect size of the sample to the margin of error for instance in Gallup polls and in different market researches
- interpret output of a statistical software.

Contents:

- collecting data, e.g. sampling
- variables and measuring
- descriptive statistical methods and their selection
- margin of error of estimator for population mean and proportion
- statistical literacy
- basic analysis of data using statistical software

Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Total 50 h face-to-face teaching including lectures and exercise (partly computer exercises). Independent work 83 h.
Target group:
Minor students
Recommended optional programme components:
After the course, student is able to continue to A Second Course in Statistics.
Recommended or required reading:
Lecture notes
Assessment methods and criteria:
Mid-term exams and/or final exam and possible homework.
Grading:
Fail, 1-5
Person responsible:
Hanna Heikkinen and Jari Päkkilä
Working life cooperation:
No
Other information:
-

790160P: Introduction to Tourism Geography, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Saarinen, Jarkko Juhani

Opintokohteen kielet: Finnish

Leikkaavuudet:

790160A	Introduction to tourism geography	5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Finnish
Timing:
1st year, 1st semester.
Learning outcomes:
Student will learn about the toursim phenomenon and its regional and development characteristics and impacts. After the course the student can define and interpret different aspects of the tourism geography and its subject matters.
Contents:
Basic concepts of the tourism phenomena, spatial characteristics of tourism and its development aspects.
Mode of delivery:
Face-to-face learning or virtual learning.
Learning activities and teaching methods:
16 h lectures/virtual learning, exam or other assignments.
Target group:
Common course to all 1st year students of Geography. Students minoring Tourism and Geography.
Prerequisites and co-requisites:
-
Recommended optional programme components:

Course is part of the minor studies of Geography and Tourism.
Recommended or required reading:
Hall, C.M. and S. Page (1999 or later edition). The Geography of Tourism and Recreation - Environment, Place and Space (partly).
Other materials.
Assessment methods and criteria:
Exam and/or other assigments.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Jarkko Saarinen (exam/assignments: Outi Kulusjärvi)
Working life cooperation:
No

750122P: Introduction to cell biology and physiology, 5 op

Voimassaolo: 01.08.2020 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Häggman, Hely Margaretha

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.S. 1st autumn.
Learning outcomes:
Students will acquire comprehensive understanding of how an organisms function on molecular, cell and physiological level.
Contents:
The course has been divided into four section: animal- and plant cell biology, genetics, and animal physiology.
Mode of delivery:
Face-to-face teaching.
Learning activities and teaching methods:
40 hours of lecture and hours of independent learning.
Target group:
Compulsory to the biology and biochemistry students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
-
Recommended or required reading:
Molecular Biology of the Cell (Alberts et al.)
Biology: a global approach (Campbell ym.)
Assessment methods and criteria:
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Numerical grading scale 0 – 5, where 0 = fail. Final grade is average value of the exams.
Person responsible:
Prof. Hely Häggman and Dr. Sanni Kinnunen.
Working life cooperation:
No.
Other information:
-

Compulsory

750122P-01: Introduction to cell biology and physiology, genetics, 0 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Häggman, Hely Margaretha
Opintokohteen kielet: Finnish

750122P-04: Introduction to cell biology and physiology, animal physiology, 0 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Häggman, Hely Margaretha
Opintokohteen kielet: Finnish

750122P-03: Introduction to cell biology and physiology, plant cell biology, 0 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Häggman, Hely Margaretha
Opintokohteen kielet: Finnish

750122P-02: Introduction to cell biology and physiology, animal cell biology, 0 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Field of Biology
Arvostelu: 1 - 5, pass, fail
Opettajat: Häggman, Hely Margaretha
Opintokohteen kielet: Finnish

802151P: Introduction to mathematical deduction, 5 op

Voimassaolo: 01.08.2009 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Mathematics
Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay802151P Introduction to mathematical deduction (OPEN UNI) 5.0 op

ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
First period at the first semester.
Learning outcomes:
After completing the course, the student:
- is able to understand different proving techniques
- is able to evaluate and justify whether simple statements are true or false
- is able to understand and read text containing mathematical notation
- knows the basic definitions and concepts related to set theory and functions

Contents:
The course in an introduction to mathematical deduction and introduces different types of proof techniques. Special attention is paid to mathematical reading and writing skills and justifying reasoning. Main concepts in this course are basic set theory and functions.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 28 h, exercises 14 h
Target group:
Major and minor students
Prerequisites and co-requisites:
-
Recommended optional programme components:
-
Recommended or required reading:
Lecture notes
Assessment methods and criteria:
Exercises and final exam.
Grading:
Pass/Fail
Person responsible:
Topi Törmä
Working life cooperation:
No

ay802150P: Introduction to mathematical deduction (OPEN UNI), 2 op

Voimassaolo: 01.08.2020 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: University of Oulu, Open University

Arvostelu: 1 - 5, pass, fail

Opetus suunnattu: University of Oulu, Open University

Opintokohteen kielet: Finnish

Leikkaavuudet:

802150P Introduction to mathematical deduction 2.0 op

Ei opintojaksokuvauksia.

ay802151P: Introduction to mathematical deduction (OPEN UNI), 5 op

Voimassaolo: 01.08.2012 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: University of Oulu, Open University

Arvostelu: 1 - 5, pass, fail

Opetus suunnattu: University of Oulu, Open University

Opintokohteen kielet: Finnish

Leikkaavuudet:

802151P Introduction to mathematical deduction 5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Finnish
Timing:
First period at the first semester.
Learning outcomes:
After completing the course, student
- is able to use different methods proving techniques
- is able to use basic set theoretic concepts and definitions
- is able to define and apply basic definitions related to functions

Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 30h, exercises 18h
Target group:
Major and minor students
Recommended or required reading:
Lecture notes
Assessment methods and criteria:
Final exam
Grading:
1-5
Person responsible:
Maarit Järvenpää
Working life cooperation:
No

790104P: Introduction to systematic Human Geography, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790104P Introduction to systematic humangeography (OPEN UNI) 5.0 op

Voidaan suorittaa useasti: Kyllä

ECTS Credits:
5 ECTS
Language of instruction:
Finnish
Timing:
1st year, 2nd semester (4th period).
Learning outcomes:
The purpose of the course is to initiate the development of human geography and topical research themes. Upon completion of the course, the student will be able to comprehend different fields of study and systematic approaches in human geography.

Contents:
Cultural phenomena and their geographical examination: including economics, industrialization, politics, religion, urban geography, demography, ethnicity, postcolonialism, languages, globalization, popular culture.
Mode of delivery:
Face-to-face teaching.
Learning activities and teaching methods:
Lectures 20 h. and exercises 56 h. (including small group teaching, self-study and a practical work). The work at exercises focus on concreate human geographical problems with the use of empirical material. The course includes an exam, based on the content of lectures. The grading bases on both lecture exam and the work in exercises (50/50).
Target group:
The course is aimed at all first year students in geography. Students minoring in geography.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of the minor studies of Geography.
Recommended or required reading:
Will be announced later.
Assessment methods and criteria:
Exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1-5.
Person responsible:
Juha Ridanpää (lectures) and Vesa Väätänen(practicals).
Working life cooperation:
No.

790152P: Introduction to the discipline of Geography, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Jan Hjort

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790152P	Introduction to the discipline of geography (OPEN UNI)	5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Only in Finnish.
Timing:
BSc, 1st year, 1st semester
Learning outcomes:
With this course the students can analyse the history of Geography and contents of its different fields, concepts and research aspects.
Contents:
Lectures will give a general overview of Geography as an independent discipline. It will be completed by considering history, concepts and research aspects of Geography.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
20 hours lectures, literature and written exam.
Target group:
Obligatory for all the 1st year students of Geography. Geography minor students.
Prerequisites and co-requisites:
-
Recommended optional programme components:

Course is part of the minor studies of Geography.
Recommended or required reading:
- International Encyclopedia of Human Geography (toim. Rob Kitchin & Nigel Thrift), chapters: Metaconcepts: Landscape, Place, Scale, Space I, Space-Time, Space II, Territory and Territoriality Philosophy and Geography: Regional Geography I Political Geography: Regionalism Social & cultural geography: Citizenship, Cultural Geography, Sense of Place.
- Lecture slides and three articles can be found from the Moodle.

Assessment methods and criteria:
Exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1-5.
Person responsible:
Jan Hjort, Juha Ridanpää
Working life cooperation:
No.

790102P: Introduction to the systematic Physical Geography, 5 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Jan Hjort

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790102P	Introduction to the systematic physical geography (OPEN UNI)	5.0 op

Voidaan suorittaa useasti: Kyllä

ECTS Credits:
5 ECTS cr
Language of instruction:
Finnish and English (Lectures are only in Finnish, but this course can be completed also in English with some extra readings. Practicals are also organized in English.)
Timing:
1 year, spring semester (3rd period).
Learning outcomes:
This introductory course will give information about systematic fields of Physical Geography and its contemporary research. After the course, the student recognizes the most essential phenomena of geosphere (geomorphology), hydrosphere (hydrogeography), biosphere (biogeography), atmosphere (climatology), and he/she is able to do conclusions about the factors that influence those phenomena. The aim of the practicals is that the student can use basic methods of the research of Physical Geography.
Contents:
Geomorphology, climatology, hydrogeography, biogeography; and geosphere, atmosphere, hydrosphere and biosphere. The students will learn how nature works and how to resolve multiple environmental questions. Practicals are focused to the importance of the material compilation and its technical use.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
20 h lectures, 42 h practicals.
Target group:
Common course to all 1st year students of Geography. Minor student in Geography and Basic Studies in Environmental Conservation. Geography exchange students.
Prerequisites and co-requisites:
790101P GIS-basics and Cartography
Recommended optional programme components:
Course is part of minor studies of Geography and Basic Studies in Environmental Conservation.
Recommended or required reading:
- Strahler, Alan (2013). Introducing Physical Geography.
- More material from the practicals.

Assessment methods and criteria:
Exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Jan Hjort
Working life cooperation:
No.
Other information:
Exchange students are asked to contact prof. Hjort before the course.

761115P: Laboratory Exercises in Physics 1, 5 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opettajat: Lauri Hautala

Opintokohteen kielet: Finnish

Leikkaavuudet:

761121P	Physical Measurements I	3.0 op
761121P-01	Physical measurements I, exam	0.0 op
761121P-02	Physical measurements I, lab. exercises	0.0 op
800149P	Introduction to LateX	2.0 op

ECTS Credits:
5 ECTS credits / 135 hours of work
Language of instruction:
Finnish
Timing:
Spring term, periods 3 and 4
Learning outcomes:
The student can safely make physical measurements, use basic measurement tools, read different scales, handle the data, calculate the error estimations and make a sensible report of the laboratory measurements.
Contents:
The skill of measuring is important for physicists. This is an introductory course on how to make physical measurements and how to treat the measured data. Laboratory works are made in groups. Laboratory safety is also an essential part of physical measurements. Measurements are made with different instruments. As a result, the most probable value is determined as well as its error. The skills obtained during this course can be applied in the subsequent laboratory courses Laboratory exercises in physics 2 and 3.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
12 hours of lectures, 16 hours of exercises, 107 hours of self-study.
Target group:
Students in physics degree program. Other students studying in University of Oulu can also participate to the course.
Prerequisites and co-requisites:
No specific prerequisites.
Recommended optional programme components:
The course is an independent entity and does not require additional studies carried out at the same time.
Recommended or required reading:
Study material will be announced at the beginning of the course.
Assessment methods and criteria:
The assessment is performed using exercises to be completed during the course. Further instructions will be given at the beginning of the course.
Grading:

The course utilizes a numerical grading scale 0-5 where zero stands for a fail.
Person responsible:
Lauri Hautala
Working life cooperation:
The course does not contain working life cooperation.
Other information:
Timetables, further instructions and materials can be found from the course website in Moodle (moodle.oulu.fi).

Compulsory

761115P-01: Laboratory Exercises in Physics 1, lecture and exam, 0 op

Voimassaolo: 01.01.2017 -
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Field of Physics
Arvostelu: 1 - 5, pass, fail
Opettajat: Lauri Hautala
Opintokohteen kielet: Finnish
Leikkaavuudet:

761121P-01	Physical measurements I, exam	0.0 op
761121P-02	Physical measurements I, lab. exercises	0.0 op
761121P	Physical Measurements I	3.0 op

Ei opintojaksokuvauksia.

761115P-02: Laboratory Exercises in Physics 1, laboratory exercises, 0 op

Voimassaolo: 01.01.2017 -
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Field of Physics
Arvostelu: 1 - 5, pass, fail
Opettajat: Lauri Hautala
Opintokohteen kielet: Finnish
Leikkaavuudet:

761121P-01	Physical measurements I, exam	0.0 op
761121P-02	Physical measurements I, lab. exercises	0.0 op
761121P	Physical Measurements I	3.0 op

Ei opintojaksokuvauksia.

ay740160P: Life at small scale (OPEN YO), 2 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Caglar Elbuken
Opintokohteen kielet: English

ECTS Credits:

2 ECTS
Language of instruction:
English
Timing:
autumn term (7.9.–31.10.2020)
Learning outcomes:
Students choosing the right discipline for themselves for their higher education. The lecture will discuss several different disciplines and will help to clarify how our understanding at small scale has been shaped through developments in physics, materials science, chemistry and biology.
Contents:
Life exists at different scales from single cell organisms to large societies. In this course, we will look into some of the fundamental principles of life at microscopic scale. The mechanisms effective at small scale are the building blocks of life and hierarchical gathering of those structures lead to the macroscopic world we experience and the complex networks, cities and societies that we live in. We will explore some fundamental laws of the universe with a nice blend of biology, chemistry and physics. Syllabus:
1: Chemistry, biology, physics: are they really different disciplines?
2: Scale: from sub-microscopic organisms to galaxies. Any common rules that govern all of them?
3: Our understanding today at the microscale. The evolution of microsystem technologies.
4: Motion at micro/nanoscale. The unintuitive behavior at the micro and nanoscale. How does Corona virus spread? Was Newton wrong?
Mode of delivery:
Web-Based Studies
Learning activities and teaching methods:
Self-study
Target group:
Students in Open university (visit course for secondary school students)
Prerequisites and co-requisites:
-
Recommended optional programme components:
-
Assessment methods and criteria:
Online exercises
Grading:
pass/fail
Person responsible:
Caglar Elbuken
Working life cooperation:
No
Other information:
No

ay752316A: Macro fungi (OPEN UNI), 3 op

Voimassaolo: 01.08.2012 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: University of Oulu, Open University

Arvostelu: 1 - 5, pass, fail

Opetus suunnattu: University of Oulu, Open University

Opintokohteen kielet: Finnish

Leikkaavuudet:

752316A Macro fungi 3.0 op

ECTS Credits:
3 cr.
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.
Grading:
1-5 / Fail.
Person responsible:
Dr. Annamari Markkola.
Working life cooperation:
No.
Other information:
-

ay802158P: Mathematics for Economic Sciences (OPEN UNI), 7 op

Voimassaolo: 01.08.2014 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opintokohteen kielet: Finnish
Leikkaavuudet:

802158P Mathematics for Economic Sciences 7.0 op

766101P: Mathematics for physics, 5 op

Voimassaolo: 01.01.2015 -
Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Field of Physics
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: Finnish
Leikkaavuudet:

ay766101P Mathematics for physics (OPEN UNI) 5.0 op
763101P Vector and tensor analysis 6.0 op

ECTS Credits:

5 ECTS credits / 133 hours of work
Language of instruction:
Finnish, the course can be completed in English
Timing:
First autumn, period 1
Learning outcomes:
The course quickly provides the student the basic mathematical knowledge and skills required in physical sciences. The objective is to learn the basics of differential and integral calculus, methods for solving the most typical first and second order differential equations and the basics of vector differential calculus. After the course the student understands the basic mathematical methods needed in physics and is able to apply them to problems arising in the different physics courses and in research. Another objective is also to understand the geometrical meaning of different mathematical concepts and their connection to physical phenomena.
Contents:
Integral and differential calculus, complex variables and functions, introduction to differential equations, vectors, functions of several variables, differentials and partial derivatives, gradient, divergence, curl, scalar and vector fields, Gauss's and Stokes theorem.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 14 h, exercises 28 h, self-study 90 h
Target group:
Primarily for students who study Physics in the University of Oulu.
Prerequisites and co-requisites:
No specific prerequisities
Recommended optional programme components:
No alternative course units or course units that should be completed simultaneously.
Recommended or required reading:
Lecture notes and the textbook R. A. Adams, Calculus - A Complete Course.
Assessment methods and criteria:
Continuous evaluation and final examination
Grading:
Numerical grading scale 0 – 5, where 0 is fail
Person responsible:
Seppo Alanko
Working life cooperation:
No work placement period
Other information:
moodle.oulu.fi

761118P: Mechanics 1, 5 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opettajat: Aku Venhola

Opintokohteen kielet: Finnish

Leikkaavuudet:

766343A	Mechanics	7.0 op
761111P	Basic mechanics	5.0 op
761101P	Basic Mechanics	4.0 op
766323A	Mechanics	6.0 op
761323A	Mechanics	6.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work
- 761118P-01, Lectures and exam (4 cr)
- 761118P-02, Lab. exercises (1 cr)

Language of instruction:
The lectures will be in Finnish. The textbook is in English and exercises are selected from the textbook. For further information, contact the responsible person of the course.
Timing:
Autumn
Learning outcomes:
The student is able to describe the basic concepts of mechanics and to apply those when solving the problems related to mechanics.
Contents:
We encounter many phenomena related to mechanics in our everyday life. Most engineering sciences are based on mechanics and mechanics forms the basis of many other fields of physics, including modern physics. Contents in brief: Short summary of vector calculus. Kinematics, projectile motion and circular motion. Newton's laws of motion. Work and different forms of energy. Momentum, impulse and collisions. Rotational motion and moment of inertia. Torque and angular momentum. Rigid body equilibrium problems. Gravitation. Periodic motion. Fluid mechanics.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 30 h, 7 exercises (14 h), 2 laboratory exercises (3 hours/exercise), self-study 83 h
Target group:
For the students of the University of Oulu.
Prerequisites and co-requisites:
Knowledge of vector calculus and basics of differential and integral calculus.
Recommended optional programme components:
No alternative course units or course units that should be completed simultaneously.
Recommended or required reading:
Text book: H.D. Young and R.A. Freedman: University physics, Addison-Wesley, 13th edition, 2012, chapters 2-14. Also older and newer editions can be used. Lecture material: Finnish lecture material will be available on the web page of the course.
Assessment methods and criteria:
Both parts (761118P-01 and 761118P-02) will be graded separately. The final grade of the course is the weighted average of the grades of part 1 (4 cr) and part 2 (1 cr).
761118P-01: Two midterm exams or final examination
761118P-02: Two laboratory exercises.
Grading:
Numerical grading scale 0 – 5, where 0 = fail
Person responsible:
Aku Venhola
Working life cooperation:
No work placement period

740149P: Metabolism I, 4 op

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Faculty of Biochemistry and Molecular Medicine

Arvostelu: 1 - 5, pass, fail

Opettajat: Tuomo Glumoff

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay740158P	Basic biochemistry 3: Metabolis (OPEN UNI)	4.0 op
ay740154P	Basic biochemistry 3: Metabolis (OPEN UNI)	3.0 op
740146P	Metabolism I	6.0 op

ECTS Credits:
4 credits
Language of instruction:
Finnish
Timing:
spring

Learning outcomes:
Students will be able to explain the main principles of how the metabolism is made up, will get a detailed picture of the energy metabolism, and will be able to organize part of the wholeness of metabolism, particularly how energy metabolism is networked to the synthesis and degradation of biomolecules.
Contents:
On this course the central concepts and mechanisms of metabolism, its regulation and the integration of metabolic pathways will be introduced, like anabolism and catabolism, linking of different pathways, and metabolic regulation. Especially the energy metabolism will be studied, concerning carbohydrates, lipids and the respiratory chain. Combined with the course Metabolism II the students will get a good overview on the principles of metabolism, metabolic integration and the methods to study metabolism.
Mode of delivery:
Face to face teaching
Learning activities and teaching methods:
Lectures (28 h), problem-based exercises and final exam.
Target group:
Minor subject students
Prerequisites and co-requisites:
Biomolecules for Biochemists or Biomolecules for Bioscientists or Biomolecules
Recommended optional programme components:
-
Recommended or required reading:
-
Assessment methods and criteria:
Problem-based exercises and a final exam will count towards the final grade.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1-5/fail.
Person responsible:
Tuomo Glumoff
Working life cooperation:
No
Other information:
This module is the same as Metabolism I (740146P), except that it contains no laboratory component.
Location of instruction: Linnanmaa

790346A: Nature conservation: a geographic perspective, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS
Language of instruction:
Finnish and English
Timing:
2nd or 3rd year, 1st or 2nd semester.
Learning outcomes:
The student is able to define and apply the most essential concepts of the discipline from the view point of Physical Geography.
Contents:
The student deepens his/her geographical way of thinking by reading the material of Physical Geography and by writing three applied essays. The topics of the essays are agreed separately with the course supervisor.
Mode of delivery:
The student gets course instructions and agrees the subjects of the essays with the course supervisor.
Learning activities and teaching methods:
Independent work, essays
Target group:

Geography students, especially students specializing in Physical geography. Minor students in geography and Basic Studies in Environmental Conservation. Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies of Geography and Basic Studies in Environmental Conservation
Recommended or required reading:
List of source books is given together with course instructions.
Assessment methods and criteria:
The student writes three applied essays.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
The course utilizes a numerical grading scale 1-5.
Person responsible:
Oona Könönen
Working life cooperation:
No.

791635A: Physical Geography of Fennoscandia, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay791635A	Physical Geography of Fennoscandia (OPEN UNI)	5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
English
Timing:
2nd or 3rd year, 1st or 2nd semester.
Learning outcomes:
Course familiarizes students to the geography of the Fennoscadia. After the course student is able to define the special characters of the physical geography of Fennoscandia
Contents:
Physical geography of the Fennoscandia.
Mode of delivery:
Online course in Moodle
Learning activities and teaching methods:
https://moodle.oulu.fi/course/view.php?id=3705
Target group:
Geography students, especially students who will specialize to physical geography and teachers. Geography minor students. Geography exchange students.
Prerequisites and co-requisites:
-
Assessment methods and criteria:
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Janne Alahuhta
Working life cooperation:
No.
Other information:
The course will be arranged twice during an academic year. The course consist of five periods. Each of these periods last for two weeks.

761108P: Physical world view, 5 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

761112P Physical world view 3.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work
Language of instruction:
Finnish
Timing:
Autumn
Learning outcomes:
After the course student can see the position of physics in the advancement of scientific world view and technology. The student has a comprehensive view of different learning and studying methods (s)he can use later on.
Contents:
The forming of key concepts in physics, using models and observations in advancing both classical and modern physics. The meaning of applying physics in modern society. Getting to know different areas of physics research and employment opportunities for physicists.
Mode of delivery:
Multiform teaching
Learning activities and teaching methods:
48 h face-to-face teaching, 85 h independent work including course work and group work
Target group:
Primarily for the students of the degree programme in physics. Also for the other students of the University of Oulu.
Prerequisites and co-requisites:
No specific prerequisites
Recommended optional programme components:
No alternative course units or course units that should be completed simultaneously.
Recommended or required reading:
Feynman, R. The Character of Physical Law, Penguin Books 1992 (or equivalent, there are several prints). The original Massenger Lectures by Richard Fenyman in 1965 (7x55min) can be found online with search "Richard Feynman messenger lectures".
Assessment methods and criteria:
Passed course work or final exam
Grading:
Numerical grading scale 0-5, where 0 = fail
Person responsible:
Pauli Väisänen
Working life cooperation:
No work placement period

756346A: Plant biology lectures, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Anna-Maria Pirttilä, Häggman, Hely Margaretha

Opintokohteen kielet: Finnish

Leikkaavuudet:

752345A Basics of functional plant biology, lectures 4.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work.
Language of instruction:
Finnish.
Timing:
B.Sc. 2nd spring.
Learning outcomes:
The student can understand and explain the function and regulation of plant cells, tissues and entire plants.
Contents:
The most important phenomena of plant life, like photosynthesis, nitrogen metabolism and plant hormones are discussed.
Mode of delivery:
Face-to-face teaching, book exam.
Learning activities and teaching methods:
Lectures (20 h), Moodle pages and exams.
Target group:
Compulsory to the biology students.
Prerequisites and co-requisites:
Introduction to cell biology and physiology (750122P) or equivalent knowledge helps in following this course.
Recommended optional programme components:
-
Recommended or required reading:
Taiz, L. et al. 2015. Plant Physiology and Development. Sixth Edition.761 p. Sinauer Associates, Inc. ISBN-9781605352558.
Terävä, E. & Kanervo, E. 2008: Kasvianatomia or equivalent.
The availability of the literature can be checked from this link.
Assessment methods and criteria:
Lectures, book, exams. Moodle: https://moodle.oulu.fi/course/view.php?id=991
Read more about assessment criteria at the University of Oulu webpage.

Grading:
Numerical grading scale 0 – 5, where 0 = fail.
Person responsible:
Prof. Hely Häggman and Doc. Anna Maria Pirttilä.
Working life cooperation:
No.
Other information:
-

766116P: Radiation physics, biology and safety, 5 op

Voimassaolo: 01.01.2015 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

761116P Radiation physics, biology and safety 3.0 op

ECTS Credits:
5 ECTS credits / 135 hours of work
Language of instruction:
Finnish
Timing:
Spring term, 3. period

Learning outcomes:
After completing the course, the student:
- can describe the physical origin of different types of radiation and their interaction with matter,
- can explain the essential effects ionizing radiation has on human body and
- knows what rules and regulations govern the use of radiation in Finland.

Contents:
The topics of the course include the origin of ionizing radiation e.g. as a result of radioactive decay and in nuclear reactions, the interaction between radiation and matter, the detection and measurements of radiation, physical quantities and measuring units related to radiation, radiation in the environment, and examples of utilizing radiation in the industry and research. The biologic effects of radiation and legislation related to radiation safety are also discussed.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
14 hours of lectures, 14 hours of exercises, 107 hours of self-study
Target group:
Students in physics degree program. Other students studying in University of Oulu can also participate to the course.
Prerequisites and co-requisites:
Broad studies in high school physics and basics from high school chemistry and biology.
Recommended optional programme components:
The course is an independent entity and does not require additional studies carried out at the same time.
Recommended or required reading:
Lecture material (in Finnish), ”säteily- ja ydinturvallisuus” book series produced by säteilyturvakeskus and other material provided during the course.
Assessment methods and criteria:
Exercise problems. Further instructions will be given at the beginning of the course.
Grading:
The course utilizes a numerical grading scale 0-5 where zero stands for a fail.
Person responsible:
Juho Keskinen
Working life cooperation:
The course does not contain working life cooperation.
Other information:
Timetables, further instructions and materials can be found from the course website in Moodle (moodle.oulu.fi).

790106A: Region, culture and society, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Paasi Anssi

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS
Language of instruction:
Finnish
Timing:
2nd year, Autumn semester (2nd period).
Learning outcomes:
A student can explain and represent the main ideas of regional geography, theoretical and practical meanings of concept 'region' and the role of region in order to manage society and culture.
Contents:
Development of (contemporary) regional geography, theoretical meanings of concept 'region', region and power. Lecture serves different fields of specialization.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
16 h lectures and an exam (lectures and literature)

Target group:
Common course to all students of Geography. Geography minor students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies of Geography.
Recommended or required reading:
Material will be delivered during the course.
Assessment methods and criteria:
Exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Anssi Paasi.
Working life cooperation:
No.

790603S: Special research course in Geoinformatics, 5 op

Voimassaolo: 01.01.2017 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Harri Antikainen

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS
Language of instruction:
Finnish or English.
Timing:
1st or 2nd MSc-year, 1st or 2nd semester.
Learning outcomes:
The student will deepen and develop his/her geographical knowledge through literature or through empirical study. More exact learning outcomes is based on method of implementation of the course (agreed with professor).
Contents:
This course serves the specialization of the student. After the course, the student has deepened his/her knowledge and experience in his/her field of specialization.
Learning activities and teaching methods:
This course may be performed by different ways. The student can: to make another final exam from other module; to carry out some other course from other module; work as research assistant; to make virtual course related to his /her field; to make manuscript based on his/her Master Thesis. Ways of performance can be discussed with professor. The course can also be accomplished using material of the online course ”Introduction to GIS automatization and programming / Johdatus GIS-automatisointiin ja -ohjelmointiin” (available only in Finnish) as specifically agreed with the professor.
Target group:
MSc-geography students, GIS-minor students.
Prerequisites and co-requisites:
790101P GIS-basics and Cartography, 790342A Advanced course in GIS
Recommended optional programme components:
Course is part of GIS-minor.
Recommended or required reading:
Will be agreed with professor.
Assessment methods and criteria:
Written exam on examinarium or other way of performance.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:

Harri Antikainen
Working life cooperation:
Yes. Working in research or development projects gives completion for working after graduation.

790350A: Special themes in Regional Development and Regional Policy, 5 op

Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Field of Geography
Arvostelu: 1 - 5, pass, fail
Opettajat: Marika Kettunen
Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS
Language of instruction:
Finnish and English
Timing:
2nd or 3rd year, 1st or 2nd semesters (autumn or spring semesters)
Learning outcomes:
1) Student understands the ideas of regional planning and is familiar with traditional and topical theoretical discussions. Student acquaint her/himself with critical theoretical debates regarding the regional and urban planning approaches.
2) Student understands the theoretical debates about strategic planning and urban-rural dynamics and interactions. Student learns to interpret novel and forthcoming reforms in the planning system from a critical point of view.
Contents:
Planning theories, market-driven processes and planning, strategic planning in urban and rural contexts, reforms of planning system.
Mode of delivery:
Compilation of essays. Exchange students are asked to contact the teacher in advance, if planning to pass the course during her/his exchange.
Learning activities and teaching methods:
Student studies the given literature with care and writes the compilation of essays independently. Detailed instructions from the teacher.
Target group:
Geography students, especially students specializing in Regional Development and Policy. Students minoring in Regional Development and Policy. Geography exchange students.
Prerequisites and co-requisites:
The course is planned for those students who already have some basic knowledge of regional development or regional policy. The student should have passed some general level introductory studies to the field of regional development/policy in her/his home institution (equivalent to the course ‘Introduction to Regional Development and Regional Policy’ in Oulu) before attending this course. Please contact teacher in advance and clarify your starting level to her/him.
Recommended optional programme components:
-
Recommended or required reading:
Ask instructions and the list of literature from the teacher.
Assessment methods and criteria:
Compilation of essays as independent work.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Marika Kettunen.
Working life cooperation:
No.
Other information:
Exchange students are asked to contact the teacher before registration.

ay790329A: Sustainable development and environmental change, 2 op

Voimassaolo: 01.08.2020 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: University of Oulu, Open University
Arvostelu: 1 - 5, pass, fail
Opetus suunnattu: University of Oulu, Open University
Opettajat: Päivi Lujala
Opintokohteen kielet: Finnish
Leikkaavuudet:

790329A Sustainability and environmental change 5.0 op

ECTS Credits:
2
Language of instruction:
Finnish
Timing:
To be announced later
Learning outcomes:
The aim of the course is to familiarize the student with the core issues of sustainable development and environmental change. After completing the course, the student understands and is able to explain what sustainable development is and what its main challenges are. The student is able to apply the key concepts of the topic and evaluate the significance of major environmental changes for Finland and globally.
Contents:
The course deals with the key concepts and phenomena of sustainable development and environmental change. These include among others: Agenda2030, greenhouse effect, causes and effects of climate change.
Mode of delivery:
Online teaching (Moodle)
Learning activities and teaching methods:
The course includes online teaching and preparation of an assignment. The final grade of the course is determined by the assignment.
Target group:
High school students
Prerequisites and co-requisites:
-
Recommended optional programme components:
-
Recommended or required reading:
To be announced later
Assessment methods and criteria:
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Pass/Fail
Person responsible:
Päivi Lujala
Working life cooperation:
-
Other information:
-

766381A: Sustainable.now, 5 op

Voimassaolo: 01.01.2020 -
Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Field of Physics
Arvostelu: 1 - 5, pass, fail

Opettajat: Jussi Malila

Opintokohteen kielet: Finnish, English

ECTS Credits:
5 ECTS credits / 135 hours of work
Language of instruction:
Course will be given in Finnish and English
Timing:
The course is held during the 2nd period.
Learning outcomes:
1) The student understands the intersectional, partly contradictory, goals and interdimensionality of the climate challenge and the challenges of sustainable development.
2) After completing the course, students will be familiar with the multidisciplinary links between climate change and different goals of sustainable development, and will identify different tools for solving problems.
3) The student understands the importance of positivity and solution orientation both through the global responsibility of individuals and through the transformation of existing structures.
Mode of delivery:
Course will be delivered using blended teaching; it is possible to participate the course completely through web-based teaching.
Learning activities and teaching methods:
Course implementation is based on e-learning material available in DigiCampus-platform. Forms of teaching: contact teaching/alternative tasks 12 h / studying of electronic material 86 h / learning diary 14 h / group work 23 h.
Target group:
Course is open for all students.
Prerequisites and co-requisites:
No required prerequisite
Recommended optional programme components:
The course is an independent entity and does not require additional studies carried out at the same time.
Recommended or required reading:
Learning material in DigiCampus.
Assessment methods and criteria:
Course assessment is based on the summary of the learning diary and group work.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale 0 stands for a fail.
Person responsible:
Jussi Malila
Working life cooperation:
Sustainability challenges processed during the group work can also come from working life.
Other information:
Please contact Person responsible for more information and registration for online course,

ay740155P: Targeting climate change on individual level (OPEN UNI), 2 op

Voimassaolo: 01.08.2019 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: University of Oulu, Open University

Arvostelu: 1 - 5, pass, fail

Opetus suunnattu: University of Oulu, Open University

Opettajat: Henrika Honkanen, Raisa Serpi

Opintokohteen kielet: Finnish

790320A: Tourism planning and development, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Kaarina Tervo-Kankare

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790320A Tourism planning and development (OPEN UNI) 5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
Finnish and English.
Timing:
3 year, 2nd semester.
Learning outcomes:
After this course, student understands the relationship between tourism planning and regional development and he /she knows the most central models of planning and development in local, regional and national level. He/she knows the starting points of the tourism policy in local and European level, the background aspects of the tourism policy.
Contents:
Concepts and theories of the tourism development and tourism planning, economic impacts in regional level and basic aspects of the tourism policy and regional tourism strategies.
Mode of delivery:
Face-to-face learning.
Learning activities and teaching methods:
Lectures, written seminar work and presentation, exam.
Target group:
Geography students, especially students specialising in Tourism Geography. Students minoring in Geography and Tourism. Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies tourism geography.
Recommended or required reading:
- Hall, C.M. (2000). Tourism Planning: Policies, Processes and Relationships. 236 s. Prentice Hall, Harlow.
- Other material provided in the beginning of the course.

Assessment methods and criteria:
Exam and seminar work.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Kaarina Tervo-Kankare
Working life cooperation:
No.
Other information:
Written exam can be written also in Finnish. Written seminar work and presentation is in English. Course content may vary a bit, it may be organised as written exam and seminar work

790161A: Tourism, development and sustainability, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Kaarina Tervo-Kankare

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790161A Tourism, sustainability and environment (OPEN UNI) 4.0 op

ECTS Credits:

5 ECTS
Language of instruction:
English
Timing:
2nd year, Autumn semester.
Learning outcomes:
After the course, the student understands and can apply the principles of sustainable tourism in different contexts; he/she understands the importance of sustainable development in tourism in different contexts and from different viewpoints (spatial, stakeholder, sector). Student acknowledges the utilization of tourism for diverse development purposes and has basic understanding about its potential pitfalls, especially in the Global South framework. The student can analyse and compare the impacts and meaning of different tourism activities to sustainable development.
Contents:
The course focuses on the idea of sustainable tourism and sustainable development with emphasis on tourism in Global South. The course examines the conceptual and practical dimensions of sustainable tourism, its relationship with sustainable development in general and the applicability and problems associated with it. The course's basic concepts include the following: tourism and sustainable development, sustainable tourism, tourism impacts and sustainability at different scales (local-global) and environments, the roles of different actors (stakeholders) in sustainable tourism, tourism development plans and policies, methods to measure sustainability in tourism and tourism development, the role of sustainable tourist.
These concepts will be discussed both theoretically and in practice, highlighting their relevance in the Global South dimension and utilizing examples in different contexts. Some topical issues relating with the main theme sustainable tourism, such as pro-poor tourism and climate change will be covered in the Global South contexts. In addition, the student chooses one relevant topic to which she/he familiarizes.
Increase knowledge about the role and meaning of tourism in relation to development at different scales, and in different contexts, in the sustainability framework. Sustainability will be examined throughout the tourism system, at different scales and in diverse environments, with central focus on the development issues in the Global South.
Mode of delivery:
Virtual lectures/ppts, reader, short weekly learning diaries, group discussions, and a final assignment, which is also peer-evaluated.
Learning activities and teaching methods:
Most of the course is virtual, and realized in Moodle environment. Virtual lectures, readings, small tasks, group discussions and assignments. Seminar attendance is compulsory.
Target group:
Geography students, especially students who will specialize to Tourism Geography. Students minoring in geography and Tourism. Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies of Geography (60 ECTS) and Tourism studies (25 ECTS).
Recommended or required reading:
Most of the course material will be provided via the course's Moodle environment.
Assessment methods and criteria:
Evaluation is based on course work and the final assignment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Senior lecturer Kaarina Tervo-Kankare
Working life cooperation:
No.

761310A: Wave motion and optics, 5 op

Voimassaolo: 01.08.2017 -

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Physics

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

766349A Wave motion and optics 7.0 op
761114P Wave motion and optics 5.0 op
761114P-02 Wave motion and optics, lab. exercises 0.0 op
761114P-01 Wave motion and optics, lectures and exam 0.0 op
766329A Wave motion and optics 6.0 op
761104P Wave Motion 3.0 op

ECTS Credits:
5 ECTS credits / 133 hours of work
Language of instruction:
Finnish. The course material and exercises are available in English.
Timing:
First spring
Learning outcomes:
The student is able to treat different types of waves by methods of general theory of wave motion. The student is also able to solve problems related to basic optics and apply her/his knowledge to teaching and research in physics.
Contents:
General principles of wave motion, sound, electromagnetic waves, propagation of light, image formation in mirrors and lenses, optical instruments, interference, Fraunhofer diffraction, diffraction grating.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
Lectures 28 h, exercises 14 h, 2 laboratory exercises (3 hours/exercise), self-study 90 h
Target group:
No specific target qroup
Prerequisites and co-requisites:
Basic skills in mathematics.
Recommended optional programme components:
No alternative course units or course units that should be completed simultaneously
Recommended or required reading:
H. D. Young and R. A. Freedman, University Physics, Addison-Wesley, 2000 ja 2004, F. L. Pedrotti ja L. S. Pedrotti, Introduction to optics, Prentice-Hall, 2. ed., 1993 ja E. Hecht, Optics, (3rd ed.), Addison Wesley Longman, 1998.
Assessment methods and criteria:
Two written intermediate examinations or one final examination
Grading:
Numerical grading scale 0 – 5, where 0 is fail
Person responsible:
Seppo Alanko
Working life cooperation:
No work placement period
Other information:
Includes parts:
761310A-01 Wave motion and optics, lectures and exam
761310A-02 Wave motion and optics, lab. exercises

790349A: World regional geography, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Field of Geography

Arvostelu: 1 - 5, pass, fail

Opettajat: Sanna Varanka

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay790349A World regional geography (OPEN UNI) 5.0 op

ECTS Credits:
5 ECTS
Language of instruction:
English.
Timing:
2nd or 3rd year, 1st or 2nd semester.
Learning outcomes:
After the course, a student has gained a holistic picture of the phenomena and processes related to global change and understand how they have been spread in the Earth.
Contents:
Global challenges and understanding them from the regional geography perspective.
Mode of delivery:
Online course in Moodle
Target group:
Geography students, recommended for teachers, others voluntary. Geography minor students. Geography exchange students.
Prerequisites and co-requisites:
-
Recommended optional programme components:
Course is part of minor studies of Geography.
Assessment methods and criteria:
Read more about assessment criteria at the University of Oulu webpage.
Grading:
1–5.
Person responsible:
Janne Alahuhta
Working life cooperation:
No.
Other information:
The course will be arranged twice during an academic year. The course consist of five periods. Each of these periods last for two weeks.