

Opasraportti

LuTK - Geosciences 2010-2011 (2010 - 2011)

Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

774301A: A Basic Course in Geochemistry, 6 op
 488115S: Advanced Geoenvironmental Engineering, 5 op
 773646S: Advanced field techniques, 3 op
 773618S: Advances in Palaeoecology, 5 op
 773616S: Aerial photo interpretation in surficial geology, 5 op
 774304A: Analytical methods in geochemistry, 5 op
 772631S: Archean Geology, 5 op
 771303A: Bachelor of Science thesis, 9 op
 771102P: Basic course in mineralogy, 6 op
 773303A: Basics of glacial geology, 4 op
 772613S: Bedrock geology of Finland, 6 op
 772334A: Bedrock mapping, 3 op
 773341A: Biostratigraphy: diatom analyses, 5 op
 773337A: Biostratigraphy: pollen analyses, 5 op
 773605S: Composition and characteristics of fine-grained mineral sediments, 4 op
 771302A: Digital modelling and geological information systems in geosciences, 5 op
 771101P: Endogenic processes, 4 op
 773314A: Environmental Geology, 3 op
 773673S: Environmental geology and geophysicfield course, 3 op
 772640S: Excursion, 5 op
 773606S: Excursion in surficial geology, 2 - 5 op
 773610S: Excursion on glacial geology of Lapland, 4 op
 773612S: Excursion on regional surficial geology, 3 - 6 op
 771109P: Exogenic Processes, 3 op
 772103P: Field course in bedrock geology, 3 op
 772662S: Field course in bedrock geology and geophysics, 3 op
 773103P: Field course in surficial geology, 3 op
 773324A: Field mapping of Quaternary deposits, 5 op
 772310A: General mineralogy, 5 op
 774636S: Geochemistry of Mining Environment, 5 op
 774315A: Geochemistry of igneous rocks, 4 op
 774630S: Geochemistry of radiogenic isotopes, 6 op
 774631S: Geochemistry of stable isotopes, 4 op
 773675S: Geological research methods in hydrogeology, 5 op
 772628S: Geology of basic layered intrusions, 5 op
 772621S: Geology of alkaline rocks, carbonatites and kimberlites, 5 op
 773601S: Glacial Geology II, 5 op
 773621S: Global environmental and climate change during the Cenozoic, 4 op
 488108S: Groundwater Engineering, 5 op
 773331A: Hydrogeology, 5 op
 488102A: Hydrological Processes, 5 op
 772341A: Igneous Petrology, 7 op
 030005P: Information Skills, 1 op
 774329A: Introduction to Environmental Geochemistry, 5 op

- 771108P: Introduction to Ore Geology, 2 op
 771106P: Introduction to bedrock geology of Finland, 2 op
 771110P: Introduction to classification of rocks, 2 op
- Compulsory*
- 771110P-02: Introduction to classification of rocks, practices, 0 op
 771110P-01: Introduction to classification of rocks, lectures, 0 op
- 771107P: Introduction to historical geology and surficial geology of Finland, 2 op
 772335A: Introduction to ore mineralogy, 5 op
 774634S: La-ICP-MS -analytics, 4 op
 773604S: Laboratory exercises on peat geology, 4 op
 750616S: Legislation in environmental protection, 5 op
 774629S: Literature essay, 4 - 5 op
 773613S: Literature essay, 5 op
 773607S: Literature study, 5 op
 772615S: Literature study, 5 op
 772666S: Master's thesis, 30 op
 772342A: Metamorphic and sedimentary petrology, 7 op
 772630S: Metamorphic petrology, 4 op
 773614S: Microfossil research techniques (advanced), 4 op
 772619S: Mineralogical instrumental analytics, 4 op
 772601S: Mineralogy - advanced course, 5 op
 772608S: Mining geology, 3 op
 488111S: Modelling in Geoenvironmental Engineering, 5 op
 772339A: Optical mineralogy, 6 op
- Compulsory*
- 772339A-01: Optical mineralogy, lectures, 0 op
 772339A-02: Optical mineralogy, practices, 0 op
- 772625S: Ore geological field course, 2 op
 772385A: Ore geology, 5 op
 770001Y: Orientation course for new students, 1 op
 773602S: Paleolimnology, 4 op
 773330A: Peat geology, 5 op
 773317A: Physical Sedimentology, 5 op
 772636S: Practical course in fluid inclusion, 4 op
 772635S: Practical course in mineral chemistry, 4 op
 771304A: Practical training, 4 - 5 op
 772612S: Precambrian sedimentology, 4 op
 773657S: Pro gradu thesis, 30 op
 773343A: Quaternary Geology Seminar I, 5 op
 773306A: Quaternary Geology of Finland, 5 op
 773300A: Quaternary Stratigraphy, 5 op
 773619S: Quaternary geology seminar II, 5 op
 772632S: Regional ore geology, 5 op
 773648S: Sedimentary Structures, 5 op
 772606S: Sedimentary petrology, 4 op
 773647S: Sedimentology, 6 op
 774316A: Seminar in environmental geochemistry, 5 op
 772624S: Seminar in geology and mineralogy 2, 5 op
 772337A: Seminar in geology and mineralogy I, 5 op
 772667S: Seminar in ore geology, 5 op
 772658S: Special issues in geology and mineralogy, 1 - 9 op
 773608S: Special questions in Quaternary geology, 5 op
 772316A: Structural geology, 5 op
 772609S: Structural geology workshop, 6 op
 773615S: Studia Generalia -lectures, 2 op
 773679S: Studies in other universities, 0 op
 772690S: Studies in other universities and colleges, 0 op
 773645S: Study circle of glacial geology and ore exploration, 5 - 15 op
 773322A: Surficial geology in ore exploration, 5 op
 773641S: Surficial geology in ore exploration, advanced course 1, 5 op
 773642S: Surficial geology in ore exploration, advanced course 2, 5 op
 773316A: Technical Properties of Sediments, 8 op
 772333A: Technical mineralogy, 5 op
 773643S: Technical properties of sediments - advanced course, 5 op

772357A: Technical use of rocks and minerals, 4 op
 772620S: Tectonics, 5 op
 771100P: The Earth in Universe, 2 op
 773603S: Utilization of peat, 4 op
 773345A: Work practice 2, 4 - 5 op
 772338A: Work practice II, 4 - 5 op
 772614S: Workshop in bedrock mapping, 5 op

Opintojaksojen kuvaukset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset

774301A: A Basic Course in Geochemistry, 6 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Eero Hanski

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

1st or 2nd spring

Learning outcomes:

The main objective is to provide students with the basic knowledge of various aspects of geochemistry .

Contents:

Geochemistry as a field of science; history of geochemistry; tasks and fields of geochemistry; origin of chemical elements; origins and structure of the Earth; meteorites; moon and planets; composition of earth's different spheres; geochemical differentiation; geochemical circulation; the geochemical characteristics and circulation of elements; geochemistry of disintegration and stratification; pH-Eh-diagrams; clays; carbonate sediments; geochemical processes; the main fields of geochemistry and their applications.

Learning activities and teaching methods:

32 h lectures, 12 h exercises

Recommended optional programme components:

780109P

Recommended or required reading:

Gill, Robin, Chemical Fundamentals of Geology, Chapman & Hall, London, 1996, 298 p. And Mason, B. & Moore, C.B.: Principles of Geochemistry, 4th Student Edition, J. Wiley, New York, 1982, p. 187-209.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

E. Hanski

488115S: Advanced Geoenvironmental Engineering, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Process and Environmental Engineering

Arvostelu: 1 - 5, pass, fail

Opettajat: Kauko Kujala

Opintokohteen kielet: Finnish

Leikkaavuudet:

480211A Advanced Course in Environmental Geotechnics 5.0 op

ECTS Credits:

5,0 cr

Language of instruction:

Finnish

Timing:

Implementation in 3rd-4th periods.

Learning outcomes:

To familiarise the student with properties of soil, geomaterials and by-products from industry, load, design and construction of geo- and environmental structures.

Contents:

Soils, geomaterials and by-products. Strength and deformation properties. Calculation of stability, Bearing and soil pressure. Seepage water flow. Soil strengthening, congealing and melting. Soil investigation.

Learning activities and teaching methods:

Lectures, calculation and design exercises

Recommended optional programme components:

Basics in Geoenvironmental Engineering.

Recommended or required reading:

Handout and other materials delivered in lectures.

Assessment methods and criteria:

Examination and homeworks.

Person responsible:

Chief engineer Kauko Kujala

Other information:

Lectures are given every year.

773646S: Advanced field techniques, 3 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Juha Pekka Lunkka

Opintokohteen kielet: Finnish

ECTS Credits:

3 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

After completion students are able to use appropriate field methods and approaches to solve particular research problem in Quaternary geology.

Contents:

Planning and carrying out research in the field. An introduction to various field methods and analyzing techniques.

Grading:

pass/fail

Person responsible:

V. Peuraniemi or J. P. Lunkka

773618S: Advances in Palaeoecology, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Hicks Sheila

Opintokohteen kielet: English

ECTS Credits:

5 credits

Language of instruction:

english

Timing:

4th or 5th year

Contents:

The course will consist of 6 -8 meetings during the academic year. At each meeting a topic of significance to palaeoecological research will be discussed, the discussion being based on 2 -3 key published articles, which participants will be expected to read and analyse beforehand. All articles will be considered from two points of view, (i) their contribution to unravelling questions of climate change and/or environmental reconstruction and (ii) their format as a scientific paper. Emphasis will be on quantification, a multidisciplinary approach and the significance of different temporal and spatial scales. Where possible literature discussion meetings will be replaced by seminar discussions with visiting international researchers.

Grading:

pass/fail

Person responsible:

S. Hicks

773616S: Aerial photo interpretation in surficial geology, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

Upon completion of the course, student should be able to identify and interpret basic landforms from air photos.

Contents:

Basics of air photo interpretation; identifying landforms from air photos and topography maps; mapping based on air photo interpretation and the necessary field research. Students draw up a map of a small area.

Learning activities and teaching methods:

20 h lectures, 30 h practical exercises

Assessment methods and criteria:

excercises and an examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

774304A: Analytical methods in geochemistry, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

After the course students should know which kind of sample pretreatment and analysis methods are used for geological samples.

Contents:

Detection limits and errors in analysis, presentation of analytical results, sampling, sample pretreatment, sample digestion (melts, solutions), silicate analysis theories and practice of different instrumental methods (AAS, XRF, ICP-AES, ICP-MS, TIMS), a visit to a geochemical laboratory.

Learning activities and teaching methods:

24 h lectures, 6 h exercises

Recommended optional programme components:

Basic course in geochemistry (774301A)

Recommended or required reading:

Gill, Robin (ed.): Modern analytical geochemistry: an introduction to quantitative chemical analysis for earth, environmental and materials scientists, Harlow, Longman, 1997, 329 p. and Sawyer, Clair N., McCarty, Perry L., Parkin, Gene F.: Chemistry for Environmental Engineering and Science, Boston, McGraw-Hill, 2003, p. 410-451.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

E. Hanski

772631S: Archean Geology, 5 op

Voimassaolo: 01.08.2010 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Maier, Wolfgang Derek

Opintokohteen kielet: English

Ei opintojaksokuvauksia.

771303A: Bachelor of Science thesis, 9 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:

9 credits

Language of instruction:

finnish

Timing:

3rd year

Learning outcomes:

Students show that they have basic knowledge of the essential methods of their research field and they are able to use the scientific literature.

Contents:

A thesis based on individual research of literature, field work or laboratory work. Before starting the thesis, students must agree upon the details of the thesis with their professor.

Grading:

pass / fail

Person responsible:

professors

771102P: Basic course in mineralogy, 6 op**Opiskelumuoto:** Basic Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Pekka Tuisku, Hanna Juntila**Opintokohteen oppimateriaali:****Risto Piispanen ja Pekka Tuisku** (<http://cc.oulu.fi/~petuisku/Mineralogia/MinPer.htm>), 2005**Opintokohteen kielet:** Finnish**ECTS Credits:**

5 credits

Language of instruction:

finnish

Timing:

1st autumn

Learning outcomes:

Students know a basic knowledge on mineralogy.

Contents:

Crystal, crystal systems, mineral, rocks. Formation of minerals in geological processes, chemical and physical properties of minerals, occurrence and utilization. Exercises are compulsory.

Learning activities and teaching methods:

20 h lectures, 16 h exercises

Recommended or required reading:Risto Piispanen ja Pekka Tuisku (2005) Mineralogian perusteet. <http://cc.oulu.fi/~petuisku/Mineralogia/MinPer.htm>**Assessment methods and criteria:**

compulsory exercises, examination

Grading:

1-5/fail

Person responsible:

P. Tuisku

773303A: Basics of glacial geology, 4 op**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Peuraniemi, Vesa Juhani**Opintokohteen kielet:** Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

Upon completion of the course, student should have acquired knowledge of theories of how glaciers were born, of glaciogenic sediment types and of morphological landforms.

Contents:

A review to history of glacial research and its methods; theories of how glaciers were born and factors that have affect on them; present-day glaciers and their research; how snow turns into ice; movement of ice; structures of glaciers; glacier types; facts and theories about the geological activities in glaciers and how glacial sediments, landforms and erosional features are formed; glaciofluvial, glaciolacustrine and glaciomarine sedimentation, glacial deposits in pre-pleistocene formations, causes of ice ages.

Learning activities and teaching methods:

26 h lectures

Recommended optional programme components:

Exogenic processes (771109P), Surficial geology in Finland (773306A)

Recommended or required reading:

Bennet, M. R. & Glasser, N. F. 1996. Glacial Geology, Ice sheet and Landforms. Wiley. 364 s.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

772613S: Bedrock geology of Finland, 6 op**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opintokohteen kielet:** Finnish**ECTS Credits:**

6 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

After the course student should have a good overview of the Finnish bedrock and its evolution through time.

Contents:

The main geological units of the Finnish bedrock in the light of geological processes and as a function of geological time.

Learning activities and teaching methods:

40 h lectures

Recommended or required reading:

Lehtinen, M., Nurmi, P. and Rämö, T., 2005. Precambrian Geology of Finland. 736 p. Elsevier

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

N. N.

772334A: Bedrock mapping, 3 op

Assessment methods and criteria:

Written report and an Examination on identifying the species of diatoms.

Grading:

pass/fail

Person responsible:

T. Eskola

773337A: Biostratigraphy: pollen analyses, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Tiina Eskola

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish / english

Timing:

2nd or 3rd year

Learning outcomes:

Upon completion of the course, student should be able to prepare pollen samples in the laboratory and identify the most general pollen types and spores in Finland.

Contents:

The aim of this course is to familiarize students with the analysis and methods in pollen analysis and to examine the composition of pollen in organic or mineral sediments. Exercises to identify the most general pollen types and spores; manufacturing preparations; sediment analysis.

Learning activities and teaching methods:

12 h lectures, 50 h exercises

Recommended optional programme components:

Exogenic processes (771109P)

Recommended or required reading:

Bennett, K.D. & Willis, K.J., 2001. Pollen. In: Smol, J.P., Birks, H.J.B., Last, W.M. (eds.). Tracking Environmental Change Using Lake Sediments. Volume 3: Terrestrial, Algal, and Siliceous Indicators. Kluwer, Dordrecht, The Netherlands, pp. 5 - 32. Berglund, B. (ed.). Handbook of Holocene Palaeoecology and Palaeohydrology. Wiley & Sons, 1988, ss. 455-484. Plus class handouts.

Assessment methods and criteria:

Written report and an Examination on identifying the species of pollen and spores.

Grading:

pass/fail

Person responsible:

T. Eskola

773605S: Composition and characteristics of fine-grained mineral sediments, 4 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Recommended optional programme components:

Exogenic processes (771109P)

Recommended or required reading:

Murck, B.W., Skinner, B.J. & Porter, S.C., 1996: Environmental Geology, John Wiley & Sons, 535 p.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

773673S: Environmental geology and geophysicfield course, 3 op**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Peuraniemi, Vesa Juhani**Opintokohteen kielet:** Finnish**ECTS Credits:**

3 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Contents:

Course gives basic knowledge and skills for studying the Quaternary landforms, their consistency, ground water questions and environmental issues with geological and geophysical methods.

Learning activities and teaching methods:

8 h lectures, 32 h exercises

Assessment methods and criteria:

active participation

Grading:

pass/fail

Person responsible:

V. Peuraniemi

772640S: Excursion, 5 op**Voimassaolo:** 01.08.2010 -**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opintokohteen kielet:** Finnish

Ei opintojaksokuvauksia.

773606S: Excursion in surficial geology, 2 - 5 op**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

2-5 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Contents:

One to three five-day excursions in Finland or abroad during which the participants become familiar with different formations, stratigraphically good model targets, research areas and with their characteristics.

Grading:

pass/fail

Person responsible:

V. Peuraniemi

773610S: Excursion on glacial geology of Lapland, 4 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

773612S: Excursion on regional surficial geology, 3 - 6 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

3-6 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Assessment methods and criteria:

written report

Grading:

pass/fail

Person responsible:

V. Peuraniemi

771109P: Exogenic Processes, 3 op

Voimassaolo: - 31.07.2011

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

3 credits

Language of instruction:

finnish

Timing:

1st autumn

Learning outcomes:

Upon completion of the course, student should have acquired knowledge of basic concepts and processes of surficial geology. Student should also be able to identify basic sediment types and soils.

Contents:

Basic concepts of surficial physical geology, weathering, erosion, sedimentation, sediment types, soils.

Learning activities and teaching methods:

16 h lectures, 6 h exercises

Recommended or required reading:

Monroe, J.S. & Wicander, R.: The Changing Earth. Exploring Geology and Evolution. Brooks/Cole, 2001. Pages 113-147, 210-233, 301-483.

Assessment methods and criteria:

compulsory exercises, examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

772103P: Field course in bedrock geology, 3 op

Voimassaolo: 01.08.2006 -

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Kärki, Aulis Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish / english

Timing:

1st spring

Learning outcomes:

Upon completion of the course, student should be able to identify rocks and minerals in the field and know the basics of bedrock mapping.

Contents:

Introduction to bedrock mapping as part of field work. Map material (geological maps, topographic maps) and geologist's tools. Review to identification of rocks and minerals in the field.

Learning activities and teaching methods:

8 h lectures, 32 h demonstrations

Recommended optional programme components:

basic studies in geosciences

Assessment methods and criteria:

active participation, written work report

Grading:

pass/fail

Person responsible:

A. Kärki

Other information:

The course consists of two parts (772301A and 773302A), which are compulsory for all geology students.

Timing:

4th or 5th year

Learning outcomes:

After completion students will be able to understand the mechanisms behind the natural climate and environmental change and relate that to the ongoing changes in climate and environment.

Contents:

Mechanisms and rates of the environmental and climate change during the past 100 million. The course introduces, for example the influence of orbital cycles, tectonics, ocean currents and ice sheets on the environmental and climate change during the deep past.

Learning activities and teaching methods:

24 h lectures

Recommended or required reading:

Lunkka, J. P. 2008. Maapallon ilmastohistoria. Gaudeamus - Helsinki University Press. 286 s. and other selected readings

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

J. P. Lunkka

488108S: Groundwater Engineering, 5 op

Voimassaolo: - 31.07.2017

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Process and Environmental Engineering

Arvostelu: 1 - 5, pass, fail

Opettajat: Björn Klöve

Opintokohteen kielet: English

Leikkaavuudet:

480122A Groundwater Technology 5.0 op

ECTS Credits:

5,0 cr

Language of instruction:

Finnish

Timing:

Implementation in 1st-2nd periods.

Learning outcomes:

To acquire knowledge on water retention and flow in soils, hydraulics of ground water systems, ground water quality, ground water use and modelling.

Learning outcomes: Students learn to define hydraulic characteristics of soil and aquifers. Students can estimate key factors influencing on discharge and water quality of groundwater. Students can use general methods to calculate groundwater flow and design sustainable use and management of groundwaters.

Contents:

Soil and ground water, water balance, hydraulic properties of soils, formation of ground water, flow equations and solutions, pumping tests and methods, ground water quality and modelling.

Learning activities and teaching methods:

Lectures, calculus assignments, a modelling tasks (GMS-MODFLOW).

Recommended optional programme components:

Hydrological Processes.

Recommended or required reading:

Lecture notes, Physical and Chemical Hydrogeology (Domenico PA, Schwartz FW, 2nd edition, 1998, ISBN 0-471-59762-7). Maanalaiset vedet - pohjavesigeologian perusteet (Korkka-Niemi K, Salonen V-P, 1996, ISBN 951-29-0825-5). Pohjavesi ja pohjaveden ympäristö (Mälkki E, 1999, ISBN 951-26-4515-7).

Assessment methods and criteria:

Examination and report about modelling task are graded in the scale 1-5. Calculus assignments can give 1-3 points for the examination.

Person responsible:

Learning activities and teaching methods:

10 h lectures

Recommended or required reading:

Lehtinen, M., Nurmi, P. ja Rämö, T., 1998: Suomen Kallioperä, Suomen Geologinen Seura or Lehtinen et al. (ed) 2005. Precambrian Geology of Finland. Elsevier, Amsterdam, 736 s

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

A. Kärki

771110P: Introduction to classification of rocks, 2 op**Voimassaolo:** - 31.07.2011**Opiskelumuoto:** Basic Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Hanna Junttila**Opintokohteen oppimateriaali:****Martti Lehtinen, Pekka Nurminen ja Tapani Rämö, , 1998****Opintokohteen kielet:** Finnish**Voidaan suorittaa useasti:** Kyllä**ECTS Credits:**

2 credits

Language of instruction:

finnish / english

Timing:

1st autumn

Learning outcomes:

After this course student will possess the naming and classification of rock types and is able to identify the most important rock types macroscopically.

Contents:

The origin of rock types, macroscopic identification and description of origin, structure and mineralogical composition of the most important rock types.

Learning activities and teaching methods:

6 h lectures, 6 h exercises

Recommended optional programme components:

preliminary data: Basic Mineralogy

Recommended or required reading:

Martti Lehtinen, Pekka Nurminen ja Tapani Rämö: Suomen kallioperä - 3000 vuosimiljoonaa. Suomen Geologinen Seura, Gummerus Jyväskylä 1998, ISBN 952-90-9260-1. Chapters 2-3.

Assessment methods and criteria:

lectures, practical exercises , identification exam and lecture diary

Grading:

pass/fail

Person responsible:

H. Junttila

*Compulsory***771110P-02: Introduction to classification of rocks, practices, 0 op****Voimassaolo:** 01.08.2010 - 31.07.2011**Opiskelumuoto:** Basic Studies**Laji:** Partial credit**Vastuuyksikkö:** Department of Geosciences

Arvostelu: 1 - 5, pass, fail
Opettajat: Hanna Junntila
Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

771110P-01: Introduction to classification of rocks, lectures, 0 op

Voimassaolo: 01.08.2010 - 31.07.2011
Opiskelumuoto: Basic Studies
Laji: Partial credit
Vastuuyksikkö: Department of Geosciences
Arvostelu: 1 - 5, pass, fail
Opettajat: Hanna Junntila
Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

771107P: Introduction to historical geology and surficial geology of Finland, 2 op

Opiskelumuoto: Basic Studies
Laji: Course
Vastuuyksikkö: Department of Geosciences
Arvostelu: 1 - 5, pass, fail
Opettajat: Peuraniemi, Vesa Juhani
Opintokohteen kielet: Finnish

ECTS Credits:

2 credits

Language of instruction:

finnish

Timing:

1st spring

Learning outcomes:

Upon completion of the course, student should have acquired knowledge of the main features of the Finnish preglacial and Quaternary deposits and the main features of the history of life and geological time table.

Contents:

Main features and origin of the Finnish preglacial and Quaternary deposits. Historical geology: Geological time table, main features of the history of life, mass extinctions.

Learning activities and teaching methods:

10 h lectures

Recommended or required reading:

Monroe, J.S. & Wicander, R.: The Changing Earth. Exploring Geology and Evolution. Brooks/Cole, 2001. Pages 514-537, 560-733.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

772335A: Introduction to ore mineralogy, 5 op

Opiskelumuoto: Intermediate Studies
Laji: Course
Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Seppo Gehör

Opintokohteen kielet: English

Voidaan suorittaa useasti: Kyllä

ECTS Credits:

5 credits

Language of instruction:

english

Timing:

2nd or 3rd year

Learning outcomes:

Students will obtain basic knowledge on ore minerals and their mode of occurrence and learn to recognize the most common ore minerals under the ore-microscope.

Contents:

Division and structure of ore minerals, composition and texture, phase diagrams and their applications. Ore microscope and how it is used, microscopic properties of ore minerals. Ore mineral assemblages and their occurrence.

Learning activities and teaching methods:

22 h lectures, 12 h exercises

Target group:

students specializing in geology and mineralogy

Recommended optional programme components:

Introduction to ore geology (771108P), Basic mineralogy (771102P)

Recommended or required reading:

Stanton, R.L.: Ore Petrology, McGrawHill Book Company, 1972, p. 36-132.; Craig, J.P. & Vaughan, D.J.: Ore Microscopy and Ore Petrography. Wiley & Sons, 1994, 2nd ed. 434 p. *Handbooks:* Criddle A.J. & Stanley, C.J. (Ed.): Quantitative Data for Ore Minerals. Chapman Hall, 1993, 635 p.; Ramdohr, P.: The Ore Minerals and their Intergrowths, vol. 1 and 2. Pergamon Press, 1980, 1205 p.

Assessment methods and criteria:

written examination and a practical test on ore microscopy

Grading:

1-5/fail

Person responsible:

W. Maier

774634S: La-ICP-MS -analytics, 4 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Seppo Gehör

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

After the course the student will be able to work independently (under the control) in the geochemical laboratory.

Contents:

The theoretical base and the use of laser ablation inductively coupled plasma mass spectrometry (La-ICP-MS). How to express the results, limits, accuracies and how to prepare the samples.

Learning activities and teaching methods:

20 h lectures, 20 h exercises

Recommended or required reading:

Sylvester, Paul J., Laser-ablation-ICPMS in the earth sciences; principles and applications. Mineralogical Association of Canada, Short Course Series 29, 2001, 243 pp.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

S. Gehör

773604S: Laboratory exercises on peat geology, 4 op

Voimassaolo: - 31.07.2010

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Holappa, Kauko Einari

Opintokohteen kielet: Finnish

750616S: Legislation in environmental protection, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Biology

Arvostelu: 1 - 5, pass, fail

Opettajat: Huttunen, Satu

Opintokohteen oppimateriaali:

Hollo, Erkki J. , , 2001

Opintokohteen kielet: Finnish

ECTS Credits:

5 cr.

Language of instruction:

Finnish.

Timing:

B.Sc. 3rd or M.Sc. 1st autumn - spring. Every second year.

Learning outcomes:

To familiarise students with environmental legislation in European Union with regard to environmental protection and natural resources. Student is able to apply his knowledge to different environmental questions and analyze the needed means. Student knows the environmental administration and organisations in environmental protection and natural resources.

Contents:

Environmental protection and natural resources legislation in Finland and in Europe. Environmental administration and organisations, use and protection of natural resources, prevention of environmental destruction, assessment of environmental effect as well as principles of environmental legislation and main international conventions, environmental issues in UNEP and OECD are covered.

Learning activities and teaching methods:

24 h lectures, 18 h exercises including demonstrations, literature, and final exam.

Target group:

Compulsory to students who are doing the environmental protection 25 cr study module.

Recommended or required reading:

Hollo, E. J. 2001: Ympäristönsuojeluoikeus, WSOY, 592 p.

Assessment methods and criteria:

Final exam.

Grading:

1-5 / Fail.

Learning activities and teaching methods:

lectures

Recommended optional programme components:

Basic Mineralogy (771102P)

Recommended or required reading:

Putnis, A. (1992) Introduction to mineral sciences. Cambridge University Press. And Deer, W.A., Howie, R.A. & Zussman, J. (1992) An introduction to rock forming minerals. Longman.

Assessment methods and criteria:

examination

Grading:

5-1/fail

Person responsible:

P. Tuisku

772608S: Mining geology, 3 op**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Maier, Wolfgang Derek**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

ay772608S Mining geology (OPEN UNI) 3.0 op

ECTS Credits:

2 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

Students learn practical aspects of the work of mining geologists.

Contents:

Lectures of rock mechanical and rock technical geology and geologic mapping inside a mine.

Learning activities and teaching methods:

8 h lectures, 32 h exercises

Recommended optional programme components:

Ore geology (772385A)

Recommended or required reading:

Will be given on site.

Grading:

pass / fail

Person responsible:

E. Hanski

488111S: Modelling in Geoenvironmental Engineering, 5 op**Voimassaolo:** 01.08.2005 -**Opiskelumuoto:** Advanced Studies**Laji:** Course**Vastuuyksikkö:** Department of Process and Environmental Engineering**Arvostelu:** 1 - 5, pass, fail**Opintokohteen kielet:** Finnish**Leikkaavuudet:**

485305S Modelling in Geoenvironmental Engineering 5.0 op

ECTS Credits:

5,0 cr

Language of instruction:

Finnish

Timing:

Implementation in 5th-6th periods.

Learning outcomes:

To provide the student with the use of models and computational programs used in design and sizing of geoenvironmental materials and geostructures.

Contents:

Transportation of detrimental elements. Risk assessment. Design of initial and surface structures for waste final placement. Stability of landfills and seepage water drainage. Landscaping. Life cycle evaluation of geostructures.

Learning activities and teaching methods:

Lectures, design and modelling assignments.

Recommended optional programme components:

Basics in Geoenvironmental Engineering, Advanced Geoenvironmental Engineering.

Recommended or required reading:

Lecture handout and other materials delivered in lectures.

Assessment methods and criteria:

To solve given assignments and to write reports about them.

Person responsible:

Chief engineer Kauko Kujala

Other information:

Lectures are given every year.

772339A: Optical mineralogy, 6 op**Voimassaolo:** 01.08.2010 -**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Pekka Tuisku**Opintokohteen kielet:** Finnish*Compulsory***772339A-01: Optical mineralogy, lectures, 0 op****Voimassaolo:** 01.08.2010 -**Opiskelumuoto:** Intermediate Studies**Laji:** Partial credit**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Pekka Tuisku**Opintokohteen kielet:** Finnish**Voidaan suorittaa useasti:** Kyllä

Ei opintojaksokuvauksia.

772339A-02: Optical mineralogy, practices, 0 op**Voimassaolo:** 01.08.2010 -**Opiskelumuoto:** Intermediate Studies**Laji:** Partial credit**Vastuuyksikkö:** Department of Geosciences

Arvostelu: 1 - 5, pass, fail
Opettajat: Pekka Tuisku
Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

772625S: Ore geological field course, 2 op

Voimassaolo: 01.08.2009 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Maier, Wolfgang Derek

Opintokohteen kielet: English

Ei opintojaksokuvauksia.

772385A: Ore geology, 5 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Maier, Wolfgang Derek

Opintokohteen kielet: English

ECTS Credits:

5 credits

Language of instruction:

english

Timing:

2nd or 3rd year

Learning outcomes:

Upon completion of the course, students should have basic knowledge on the classification of ore deposits and have understanding of various ore-forming processes.

Contents:

The ore-forming processes of orthomagmatic, hydrothermal and sedimentary mineral deposits, and examples of different ore types.

Learning activities and teaching methods:

30 h lectures

Recommended or required reading:

Laurence Robb 2008: Introduction to Ore-Forming Processes (Blackwell) and

Ed. Chusi Li, Edward M. Ripley (Geological Publishing House, Beijing): New Developments in Magmatic Ni-Cu and PGE Deposits

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

W. Maier

770001Y: Orientation course for new students, 1 op

Opiskelumuoto: General Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:

2 credits

Language of instruction:

finnish

Timing:

1st autumn

Learning outcomes:

After this course the student is familiar with the Department of Geosciences and the University and planning his /her studies.

Contents:

The aim of the course is to introduce a student to the University, academic studies, the department and the studies of geology.

Learning activities and teaching methods:

18 h lectures

Assessment methods and criteria:

active participation

Grading:

pass/fail

Person responsible:

amanuensis

773602S: Paleolimnology, 4 op

Voimassaolo: - 31.07.2010

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Tiina Eskola, Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

Upon completion of the course, student should have acquired knowledge of lake sediment sampling techniques. Student should also be able to prepare the sample in the laboratory .

Contents:

Lakes as sedimentation environments. Lake sediment types. Use of lake sediments in environmental and paleoclimate research. Sampling techniques of lake sediments.

Learning activities and teaching methods:

10 h lectures, 16 h field and laboratory demonstrations

Recommended or required reading:

class handouts

Assessment methods and criteria:

examination

Grading:

pass/fail

Person responsible:

V. Peuraniemi, T. Eskola

773330A: Peat geology, 5 op**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opintokohteen kielet:** Finnish**ECTS Credits:**

5 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

After the course students know the basics of mire ecology, the fields and structure of mires, classification and properties of peats.

Contents:

Concepts of peat geology, bog formation processes, function of a bog ecosystem. Global peat resources. Classifications of bogs and their structures. Methods of inventory and characteristics of peat.

Learning activities and teaching methods:

30 h lectures

Recommended or required reading:

Lappalainen, E. 1996. (Ed.). Global Peat Resources. International Peat Society, Finland. Gore, A.J.P (edit.). Mires: Swamp, bog, fen and moor. Ecosystems of the world 4 A. General studies. 1983. 440 p. Gore, A.J.P. (edit.). Mires: Swamp, bog, fen and moor. Regional studies. Ecosystems of the World. 1983. 480 p. Williams, M. (Ed.). 1990. Wetlands. A Threatened Landscape. Blackwell. 418 p. Charman, D. 2002. Peatlands and Environmental Change. University of Plymouth, UK. John Wiley & Sons, LTD. 301 p

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

K. Holappa

773317A: Physical Sedimentology, 5 op**Opiskelumuoto:** Intermediate Studies**Laji:** Course**Vastuuyksikkö:** Department of Geosciences**Arvostelu:** 1 - 5, pass, fail**Opettajat:** Juha Pekka Lunkka**Opintokohteen kielet:** Finnish**ECTS Credits:**

5 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

To learn the basic concepts in sedimentology.

Contents:

The aim of the lecture course is to give geological and physical background of the exogenic processes that operate in terrestrial and marine sedimentary environments. The lecture course also introduces the basic methods and concepts used in physical sedimentology. The topics discussed are related to modern and ancient sedimentary environments and processes including themes such as weathering, soils and palaeosoils, mass movement mechanisms, water and ice flow dynamics, erosion and sedimentation processes and products.

Learning activities and teaching methods:

Arvostelu: 1 - 5, pass, fail

Opettajat: Kärki, Aulis Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

6 credits

Language of instruction:

finnish / english

Timing:

4th or 5th year

Contents:

Geometric analysis and identification of different structural elements in the field. Structural synthesis and modelling the regional structure of bedrock that is based on information collected from field observations and geophysical data maps. Maps of structural geology, profiles, sector diagrams and projections. Statistical methods and GIS-applications in the data processing.

Learning activities and teaching methods:

16 h lectures, 32 h modelling demonstrations and 40 h exercises, a written report

Recommended optional programme components:

Structural geology (772316A), Digital modeling and geological information systems in geosciences (771302A)

Recommended or required reading:

McClay: The Mapping of Geological Structures. 1991. Open University Press, Milton Keynes, 168 pages.

Rowland: Structural Analysis and Synthesis. 1986. Blackwell Sci. Publ. 208 pages. Lisle: Geological Strain

Analysis. 1985. Pergamon Press. 99 pages.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

A. Kärki

773615S: Studia Generalia -lectures, 2 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Seija Roman

Opintokohteen kielet: Finnish

Ei opintojaksokuvauksia.

773679S: Studies in other universities, 0 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

Voidaan suorittaa useasti: Kyllä

Contents:

Courses taken in international exchange programs (Erasmus, Nordplus) or courses taken in other Finnish universities.

Person responsible:

V. Peuraniemi

772690S: Studies in other universities and colleges, 0 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Voidaan suorittaa useasti: Kyllä

Contents:

Courses taken in international exchange programs (Erasmus, Nordplus) or courses taken in other Finnish universities.

Person responsible:

teachers

773645S: Study circle of glacial geology and ore exploration, 5 - 15 op

Voimassaolo: - 31.07.2007

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Peuraniemi, Vesa Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

5-15 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

Upon completion of the course, student has a good knowledge on the use of different surficial deposits in ore exploration.

Contents:

Glacial processes, glacial sediments and landforms and ore exploration studied in group work. Group work in field and laboratory, seminars and lectures on current issues. Contents, extent and used material changes every year.

Learning activities and teaching methods:

lectures, field- and laboratory works

Recommended optional programme components:

Surficial geology in ore exploration (773322A)

Recommended or required reading:

Menzies, J. (ed.), Past Glacial Environments. Sediments, Forms and Techniques. Glacial Environments Vol 2. Butterworth & Heinemann, 1996, 598 p. G.J.S. Govett (ed.), Handbook of Exploration Geochemistry, Vol. 6: Drainage Geochemistry. Elsevier, 1994, 766 p.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

V. Peuraniemi

773322A: Surficial geology in ore exploration, 5 op

Opiskelumuoto: Intermediate Studies

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning outcomes:

Upon completion of the course, student should have acquired knowledge of mechanical and physical properties of sediments.

Contents:

Advanced course on the mechanical and physical properties of sediments, studied by geotechnical methods.

Learning activities and teaching methods:

30 h demonstrations, 60 h exercises

Recommended optional programme components:

Technical properties of sediments 773316A, Technical use of rocks and minerals 772357A

Recommended or required reading:

Opetusmoniste. Rantamäki, Jääskeläinen & Tammirinne: Geotekniikka, ss. 31-161, 249-274, Otakustantamo, 1984. Velde., Velde, B: Introduction to Clay Minerals, Chemistry, Origins, Uses and Environmental Significance. Chapman & Hall, London, 198 s.

Assessment methods and criteria:

written reports and an examination

Grading:

1-5/fail

Person responsible:

K. Holappa, T. Eskola

772357A: Technical use of rocks and minerals, 4 op

Opiskelumuoto: Intermediate Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Kärki, Aulis Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Contents:

Usage of rock varieties and minerals in industry and in construction. Required qualifications for using rock varieties and minerals. Occurrences of Finnish building rocks, industrial rocks and industrial minerals; exploration of these occurrences and research methods; required qualifications of road surface materials.

Learning activities and teaching methods:

20 h lectures and a literature work

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

A. Kärki

772620S: Tectonics, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Kärki, Aulis Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Contents:

The structure of Earth's crust. The tectonic features of Archaean, Proterozoic and Phanerozoic periods. Detailed presentation of the tectonic-magmatic activation and development of shield areas and plate tectonics in different geotectonic environments.

Learning activities and teaching methods:

24 h lectures

Recommended optional programme components:

basics studies of geosciences

Recommended or required reading:

Condie K. C. 1997, Plate tectonics and Crustal Evolution. Butterworth - Heineman, Oxford, 282 p. tai Moores, M. E. & Twiss, R. J., 1995, Tectonics, W.H. Freeman and Company, 415 p. tai R.G. Park, Geological Structures and Moving Plates, 1988, Blackie, Glasgow, 337 p.

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

A. Kärki

771100P: The Earth in Universe, 2 op

Voimassaolo: - 31.07.2012

Opiskelumuoto: Basic Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Seppo Gehör

Opintokohteen kielet: Finnish

ECTS Credits:

2 credits

Language of instruction:

finnish

Timing:

1st autumn

Contents:

origin of elements, solar system, history of evolution, structure and composition of the Earth

Learning activities and teaching methods:

12 h lectures

Assessment methods and criteria:

examination

Grading:

1-5/fail

Person responsible:

S. Gehör

773603S: Utilization of peat, 4 op

Voimassaolo: - 31.07.2010

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Holappa, Kauko Einari

Opintokohteen kielet: Finnish

773345A: Work practice 2, 4 - 5 op

Opiskelumuoto: Intermediate Studies

Laji: Practical training

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

To get familiar with geologists's field work in practice.

Contents:

Practical training accomplished under the direction of a qualified geologist. Before the training, students must in advance agree upon the details of the field work with their professor such as the work place, time, instructor and the supervisor.

Learning activities and teaching methods:

practical work over a period of three months

Assessment methods and criteria:

a written report on the work

Grading:

pass/fail

Person responsible:

professor

772338A: Work practice II, 4 - 5 op

Opiskelumuoto: Intermediate Studies

Laji: Practical training

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Eero Hanski

Opintokohteen kielet: Finnish

ECTS Credits:

4 credits

Language of instruction:

finnish

Timing:

2nd or 3rd year

Learning outcomes:

To get familiar with geologists's field work in practice.

Contents:

Practical training accomplished under the direction of a qualified geologist. Before the training, students must in advance agree upon the details of the field work with their professor such as the work place, time, instructor and the supervisor.

Learning activities and teaching methods:

practical work over a period of three months

Assessment methods and criteria:

a written report on the work

Grading:

pass/fail

Person responsible:

professor

772614S: Workshop in bedrock mapping, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Department of Geosciences

Arvostelu: 1 - 5, pass, fail

Opettajat: Kärki, Aulis Juhani

Opintokohteen kielet: Finnish

ECTS Credits:

5 credits

Language of instruction:

finnish

Timing:

4th or 5th year

Learning activities and teaching methods:

12 h lectures, a field course with 48 h of demonstrations, 20 h independent exercises and a written

Assessment methods and criteria:

Active participation, a written work report.

Grading:

pass /fail

Person responsible:

professors