Opasraportti

FTech - Courses in English for exchange students, Field of Chemistry (2020 - 2021)

University's new study guide for academic year 2020-2021 is published at https://opas.peppi.oulu.fi

The study guide includes information on degrees, curriculums, courses and course timetables. Course registrations are still done in Oodi.

If you have questions on information in the study guide, please contact the study field's Academic Affairs Service Team https://www.oulu.fi/forstudents/faculty-study-affairs

Courses in English for exchange students at the Field of Chemistry

This Course Catalogue lists courses taught in English that are available for exchange students at the Field of Chemistry, Faculty of Technology, during academic year 2020-21.

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

For information on the exchange application process please see www.oulu.fi/university/studentexchange. All exchange applicants must submit their exchange application through SoleMOVE by the deadline given, proposed study plan is attached to the on-line application.

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

Teaching periods for 2020-21
Autumn term 2020
Period 1: Sept 1 - Oct 25, 2020
Period 2: Oct 26 – Dec 18, 2020

Spring term 2021
Period 3: Jan 5 – March 14, 2021
Period 4: March 15 – May 9, 2021

For arrival and orientation dates see www.oulu.fi/university/studentexchange/academic-calender

Any questions on courses at the Field of Chemistry, Faculty of Technology should be addressed to:

Johanna Kärkkäinen
johanna.karkkainen(at)oulu.fi
Exchange coordinator for Chemistry

Marita Puikkonen
study.technology(at)oulu.fi
Faculty exchange coordinator

Further information on application process and services for incoming exchange students:
www.oulu.fi/university/studentexchange or international.office(at)oulu.fi

Tutkintorakenteisiin kuulumattomat opintokokonaisuudet ja -jaksot

780660S: Advanced water treatment chemistry, 5 op
781650S: Atomic Spectrometric Techniques, 5 op
782608S: Battery chemistries and components, 5 op
900013Y: Beginners' Finnish Course 1, 3 op
900053Y: Beginners' Finnish Course 2, 5 op
782640S: Chemistry of Hydrometallurgical Processes, 5 op
900054Y: Conversational Skills in Finnish, 3 op
780600S: Final examination in chemistry, 5 op
781648S: Inorganic Structural Chemistry, 5 op
900015Y: Intermediate Finnish Course 1, 5 op
900016Y: Intermediate Finnish Course 2, 5 op
781654S: Introductory Organometallic Chemistry, 5 op
783639S: Organic Chemistry III, 5 op
780601S: Project work, 12 op
781649S: Sampling and Sample Pretreatment, 5 op
781652S: Solid State Chemistry, 5 op
900027Y: Special Course in Finnish: Writing Skills, 3 op
900017Y: Survival Finnish, 2 op

Opintojaksojen kuvaukset

Tutkintorakenteisiin kuulumattomien opintokokonaisuuksien ja -jaksojen kuvaukset

780660S: Advanced water treatment chemistry, 5 op

Voimassaolo: 01.08.2018 -
Opiskelumuoto: Advanced Studies
Laji: Course
Vastuuyksikkö: Field of Chemistry
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: English

ECTS Credits:
5 ECTS credits / 134 hours of work
Language of instruction:

Finnish and English
Timing:
Implementation as a net course, available in optional schedule (net tutors not available in July). Deadline for course materials created by student within 2 months from beginning. When starting course, contact anne.heponiemi@oulu.fi or sari.tuomikoski@oulu.fi to get the rights to Moodle workspace.
Learning outcomes:
After this course, student:
- knows legislation requirements and suggestions for municipal domestic water and wastewater in Finland
- knows water and wastewater treatment unit operations, chemical reactions and phenomena concerning to the treatment
- has created comprehensive dictionary regarding to municipal domestic and wastewater treatment
Contents:
Legislation concerning to the municipal domestic water and wastewater treatment and physical, chemical and biological unit operations as a treatment method. Case studies from municipal domestic water and wastewater treatment.
Mode of delivery:
Net course
Learning activities and teaching methods:
134 hours of self-study
Target group:
Chemistry, process and environmental engineering, open university, further education
Prerequisites and co-requisites:
General and inorganic chemistry A (780117P) and B (780118P) (or same knowledge).
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:
Finlex Legislation https://www.finlex.fi/en/
Letterman R.D, Water quality and treatment, fifth edition, American water works association, McGraw-Hill handbooks.
Metcalf and Eddy. Wastewater Engineering: treatment and reuse. 4. painos, Boston, McGraw-Hill, 2003.
RIL 124-1-2003 Vesihuolto I ja II, editor Karttunen E.
Scientific articles
Assessment methods and criteria:
Passing the course includes exploring to domestic and wastewater treatment technologies in Finland and the preparation of wide terminology regarding to water treatment. Course includes also the filling preliminary knowledge template and the final feedback of the course. Course work will be returned to Moodle workspace. In addition to the contents, the quality of the references and the layout of the work will be taken into account during evaluation.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Anne Heponiemi, Sari Tuomikoski
Working life cooperation:
No

781650S: Atomic Spectrometric Techniques, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 134 hours of work
Language of instruction:
Finnish. English on demand.
Timing:
4th or 5th spring. The course is lectured every other year.
Learning outcomes:

Upon completion of the course, student should have acquired knowledge and understanding of AAS (especially ETAAS) and plasma based techniques (ICP-OES, ICP-MS), their theoretical background and modern instrumentation. Student is also able to describe the advantages and “weak points” of the techniques in the point of view of elements and samples to be analyzed. In addition, knowledge is acquired on the ptimization of measurement procedures and interference effects and their elimination.

Contents:
Origin of atomic absorption, atomic emission and atomic mass spectra. Instrument components and their properties, optimization of the determination procedures (incl. interference effects and their correction), and instrument diagnostics. Special sample introduction techniques and hyphenated techniques.

Mode of delivery:
Face-to-face teaching

Learning activities and teaching methods:
30 hours of lectures and seminars + 104 hours of self-study incl. practical project work.

Target group:
Chemistry, optional

Prerequisites and co-requisites:
Instrumental Analysis (780328A or 781308A)

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:
Lajunen, L.H.J. and Perämäki, P.: Spectrochemical Analysis by Atomic Absorption and Emission, 2nd ed., The Royal Society of Chemistry, 2004.

Assessment methods and criteria:
Final examination or home assignment.
Read more about assessment criteria at the University of Oulu webpage.

Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.

Person responsible:
Paavo Perämäki

Working life cooperation:
No

782608S: Battery chemistries and components, 5 op

Voimassaolo: 01.01.2019 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opettajat: Ulla Lassi

Opintokohteen kielet: English

ECTS Credits:
5 ECTS credits / 130 hours of work

Language of instruction:
English

Timing:
The course is held in the spring semester, during the period 3. It is recommended to complete the course at the 4th or 5th spring semester.

Learning outcomes:
The student will learn the basic knowledge of the battery materials and structures. The student understands the operation principle of Li-ion battery, its structure, cell assembling. Further, student will learn how to improve the battery performances and especially, battery development from green chemistry viewpoint. The student will familiarize basics of chemistry and components in the battery system.

Contents:
Battery types and history; Lithium ion battery and principle; Anode and cathode materials used in lithium ion batteries; Electrolytes and other significant components for lithium-ion batteries; Preparation of a single battery cell, Battery cell assembling; Overview of other potential battery technologies.

Mode of delivery:
Web-based learning, Moodle learning environment.

Learning activities and teaching methods:

Lectures 40 h in the web, self-studies 90 h of which a part is done as independent work in the learning environment.
Target group:
Chemistry, chemistry teacher, process technology
Prerequisites and co-requisites:
The recommended prerequisite is the completion of the following courses: Physical chemistry I and II.
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 notes. Examination based on the lectures.
Assessment methods and criteria:
Final examination.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Ulla Lassi
Working life cooperation:
The course includes the guest lectures from industry.

900013Y: Beginners' Finnish Course 1, 3 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay900013Y Beginners' Finnish Course 1 (OPEN UNI) 2.0 op

Proficiency level:
A1 (target level A1.2)
Status:
The course is intended for the international students in every faculty of Oulu University.
Required proficiency level:
A1.1, Completion of the Survival Finnish course (900017Y) or the equivalent language skills.
ECTS Credits:
3 ECTS credits
Language of instruction:
As much Finnish as possible; English will be used as a help language.
Timing:
-
Learning outcomes:
By the end of the course the student can understand and use some familiar and common everyday expressions relating to her/himself and everyday situations. S/he can interact in a simple way provided the other person talks slowly and clearly and is willing to help. The student is able to read short simple texts and messages dealing with familiar topics. S/he also deepens her/his understanding of the Finnish language and communication styles.
Contents:
This is lower elementary course which aims to help students to learn communication skills in ordinary everyday situations. During the course, students broaden their vocabulary and knowledge of grammar and principles of pronunciation. They also practise to understand easy Finnish talk about everyday subjects, and reading and writing short and simple texts/messages.

The topics and communicative situations covered in the course are: talking about oneself, one's family, studies and daily routines, as well as asking about these things from other person; expressing opinions; food, drink and transactions in the grocery; accommodation and describing it; colours and adjectives.

The structures studied are: verb types, basics of the change of the consonants k, p and t in verbs and nouns, basics of the partitive and genitive cases, possessive structure, some declension types for nouns (word types) and the basics of the local cases.

Mode of delivery:
Contact teaching and guided self study
Learning activities and teaching methods:
Lessons 2 times a week (26 h, including the final exam) and guided self study (55 h)
Target group:
International degree and post-graduate degree students, exchange students and the staff members of the University.
Prerequisites and co-requisites:
Completion of the Survival Finnish Course
Recommended optional programme components:
-
Recommended or required reading:
Kuparinen, K. & Tapaninen, T. Oma suomi 1 (chapter 2 - 5)
Assessment methods and criteria:
Regular and active participation in the weekly lessons (twice a week), homework assignments and written exam at the end of the course will be observed in assessment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Grading scale is 1-5.
Person responsible:
Anne Koskela
Working life cooperation:
-
Other information:
Sign-up in WebOodi or Tuudo. The course will start right after the Survival Finnish course.

900053Y: Beginners' Finnish Course 2, 5 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay900053Y Beginners' Finnish Course 2 (OPEN UNI) 4.0 op

Proficiency level:
A1.3
Status:
International degree and post-graduate degree students, exchange students and the staff members of the University.
Students of the Oulu University of Applied Sciences (OAMK) students and OAMK's international and exchange students may also participate to this cross-institutional study. The quota principle is as follows: at least two OAMK students in a course and if there are more places, they are filled according to the queuing principle.
See more information for OAMK students https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Required proficiency level:
A1.2, completion of the Beginners' Finnish course 1 (900013Y) or the equivalent language skills.
ECTS Credits:
5 ECTS credits
Language of instruction:
As much Finnish as possible; English will be used as a help language.
Timing:
-
Learning outcomes:
By the end of the course the student can understand and use some very common everyday expressions and sentences. S/he can communicate in easy and routine tasks requiring a simple and direct exchange of information on familiar everyday matters. The student understands different kinds of short texts. S/he can for example locate important information in them. In addition, s/he has acquired more detailed knowledge of the language and culture.

Contents:

This is a post-elementary course. During the course students learn more about communication in ordinary everyday situations in Finnish. They also extend their vocabulary and knowledge of grammar. Students practise understanding simple Finnish talk and short texts.

The topics and communicative situations covered in the course are: talking about weather, carrying out transactions in clothing stores and at the doctor's, asking about location, asking for help/favours, expressing how you are feeling, writing an invitation and email; talking about past, describing people and things; seasons, the names of the months, travelling, vehicles, body parts, adjectives, food, drink and parties.
The structures studied are: the local cases, more about the change of the consonants k, p and t, more declension types for nouns (word types), nominative plural (basic form plural), basics of the imperfect (past tense of verbs), basics of the object cases, some postposition structures, some sentence types (predicative and necessity sentences).

Mode of delivery:
Contact teaching and quided self study
Learning activities and teaching methods:
Lessons 2 times a week (52 h, including the tests) and guided self study (83 h)
Target group:
International degree and post-graduate degree students, exchange students and the staff members of the University.
Students of the Oulu University of Applied Sciences (OAMK) students and OAMK's international and exchange students may also participate to this cross-institutional study. The quota principle is as follows: at least two OAMK students in a course and if there are more places, they are filled according to the queuing principle.
See more information for OAMK students https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Prerequisites and co-requisites:
Completion of the Beginners' Finnish Course 1 or the equivalent language skills.
Recommended optional programme components:
-
Recommended or required reading:
Kuparinen, K. & Tapaninen, T. Oma suomi 1 (chapters 6 - 10)
Assessment methods and criteria:
Regular and active participation in the weekly lessons (twice a week), homework assignments and tests will be taken into consideration in the assessment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Grading scale is 1-5.
Person responsible:
Arja Haapakoski
Working life cooperation:
-
Other information:
Sign-up in WebOodi or Tuudo. Staff members in staff training portal.

782640S: Chemistry of Hydrometallurgical Processes, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 130 hours of work
Language of instruction:
Finnish/English
Timing:
The course is held in the spring semester, during the period 4. It is recommended to complete the course at the 4th or 5th spring semester.

Learning outcomes:
Upon completion of the course, the student will be able to explain chemical principles of hydrometallurgical processes and phenomena. The student knows the most important chemical reactions and variables affecting hydrometallurgical processes. Process chemistry is significant in several industrial applications, and those applications are considered during the course.
Contents:
Introduction to hydrometallurgical processes, pre-treatment of concentrates (oxidation, heat treatment), principles of dissolution (including leaching and bioleaching) and purification, chemical precipitation and other metals recovery processes (extraction, ion-exchange), electrical processes and process chemistry (electrolysis, corrosion).
Mode of delivery:
Face-to-face teaching, Moodle learning environment
Learning activities and teaching methods:
Lectures 40 h, self-studies 90 h of which a part is done as independent work in the learning environment.
Target group:
Chemistry, chemistry teacher, process technology
Prerequisites and co-requisites:
The recommended prerequisite is the completion of the following courses: Physical chemistry I and II.
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 notes. Examination based on the lectures.
Assessment methods and criteria:
Final examination.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Ulla Lassi
Working life cooperation:
The course includes the guest lectures from industry.

900054Y: Conversational Skills in Finnish, 3 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Proficiency level:
B1/B2 , according to the Common European Framework.
Status:
The course is intended for the international students in every faculty at the University of Oulu. Students of the Oulu University of Applied Sciences (OAMK) may also participate to this cross-institutional study. See courses, student quota and applying for OAMK students https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Required proficiency level:
A2.2
Completion of Intermediate Finnish 2 (900016Y) or the equivalent language skills.
ECTS Credits:
3 ECTS credits
Language of instruction:
Finnish
Timing:
-
Learning outcomes:
By the end of the course the student can interact with a degree of fluency (and spontaneity) that makes regular interaction with native speakers quite possible. S/he can describe and explain (clearly and in detail) on a wide range of objects, experiences and events, dreams, hopes and ambitions. The student can bring out opinions, give

reasons and explanations for them and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options. S/he is also able to give a (clear) prepared presentation and answer the questions posed by the audience.
Contents:
During the course students strengthen their communication skills in formal and informal situations. The goal is to activate the student's Finnish skills and encourage him/her to use them in different situations. There will be various types of situational dialogue, conversation and listening exercises in the course. In addition, students will conduct a short survey which will also be reported to other students in the class.
Mode of delivery:
Contact teaching and guided self study
Learning activities and teaching methods:
Lessons twice a week (28-30 h), group work (15 h) and guided self study (36 h)
Target group:
International degree and post-graduate degree students, exchange students and the staff members of the University. Students of the Oulu University of Applied Sciences (OAMK) may also participate to this cross-institutional study. See courses, student quota and applying for OAMK students https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Prerequisites and co-requisites:
Completion of Intermediate Finnish 2 (900016Y) or equivalent skills
Recommended optional programme components:
-
Recommended or required reading:
Will be provided during the course.
Assessment methods and criteria:
To pass the course, students must attend class on a regular basis and complete group work tasks and homework assignments.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Grading is on a pass/fail basis.
Person responsible:
Anne Koskela
Working life cooperation:
-
Other information:
Sign-up in WebOodi or Tuudo. Staff members in in staff training portal.

780600S: Final examination in chemistry, 5 op

Voimassaolo: 01.08.2020 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 135 hours of work
Language of instruction:
Finnish/English
Timing:
M.Sc. studies 2nd year.
Learning outcomes:
Upon completion of the final examination, the student will be able to:
- know extensively the fundamental concepts of his/her field of chemistry.
- independently search and interpret chemistry-related scientific knowledge.
- can critically handle chemistry-related literature, draw conclusions and produce new knowledge based on it.
Contents:
Exam book/books and content have to be agreed with the responsible teacher(s) in beforehand.
Mode of delivery:
Independent learning. Book exam.
Learning activities and teaching methods:

135 hours of self-study
Target group:
Chemistry and chemistry teacher (major students), optional.
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:
Examination on selected literature of a one specific field of chemistry. Exam book/books and content have to be agreed in beforehand with the responsible teacher(s) (see Other information).
Required reading:
Inorganic chemistry:
Weller, M., Overton, T., Rourke, J. Armstrong, F.: Inorganic Chemistry, 7. ed., Oxford University Press; Oxford 2018.
Analytical chemistry:
Kellner, R., Mermet, J.-M., Otto, M., Valcárel, M., Widmer, H.M.: Analytical Chemistry, A Modern Approach to Analytical Science, 2. ed., Wiley-VCH, 2004.
Physical chemistry:
Atkins P. and De Paula, J.: Atkins' Physical Chemistry, Oxford University Press, Oxford, 9. ed (2009) or newer.
Applied chemistry:
Lema, J.M., Suarez, S.: Innovative Wastewater Treatment & Resource Recovery Technologies – Impacts on Energy, Economy and Environment, Iwa Publication, 2017.
Organic chemistry:
Clayden, J., Greeves, N., Warren, S. ja Wothers, P.: Organic Chemistry, Oxford University Press, 2. ed., 2012.

Or other literature agreed with the responsible teacher(s).
Assessment methods and criteria:
The final examination may be an oral and/or written examination. There are two teachers present in the oral examinations. The grade of the Final Examination may be improved by taking the examination again.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Matti Niemelä
Other information:
Responsible teachers for the course: Chemistry Degree program Professors, Docents, Lectures and Doctor level researchers.

781648S: Inorganic Structural Chemistry, 5 op

Voimassaolo: 01.08.2015 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
5 credits /134 hours of work
Language of instruction:
Finnish/English on demand
Timing:
4th spring. The course is lectured every other year.
Learning outcomes:
After this course the student is familiar with molecular symmetry and application of molecular symmetry in vibration spectroscopy, electronic absorption spectroscopy and in multinuclear NMR spectroscopy.
Contents:
Molecular symmetry and group theory, vibrational spectroscopy, electronic absorption spectroscopy and NMR spectroscopy.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
34 hours of lectures, 8 hours of exercises, 92 hours of self-study.
Target group:

Chemistry, optional
Prerequisites and co-requisites:
Inorganic Chemistry I (780353A or 781301A) and Inorganic Chemistry II (780391,781302A, or 781642S)
Recommended optional programme components:
Prevoius course 781639S Molecular Symmetry and Spectroscopy 5 cr. Contains also parts of the previuos course 781614S Structural Methods in Inorganic Chemistry 3 cr.
Recommended or required reading:
Rankin, D. W. H., Mitzel, N, W, ja Morrison, C. A., Structural Methods in Molecular Inorganic Chemistry, John Wiley & Sons, Ltd., Chichester, 2013.
Assessment methods and criteria:
Home exam.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Raija Oilunkaniemi
Working life cooperation:
No
Other information:
No

900015Y: Intermediate Finnish Course 1, 5 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay900015Y Intermediate Finnish Course 1 (OPEN UNI) 4.0 op

Proficiency level:
A2.1
Status:
The course is intended for the international students in every faculty at the University of Oulu.
Required proficiency level:
A1.3, Completion of the Beginners' Finnish course 2 (900053Y) or the equivalent language skills.
ECTS Credits:
5 ECTS credits
Language of instruction:
Mainly Finnish
Timing:
-
Learning outcomes:
By the end of the course the student can communicate in ordinary everyday situations when the topics are familiar or connected with everyday matters. S/he can search for and locate key informational content in different kinds of texts. The student can also identify the topic and some details of the discussion around her/him. S/he can describe activities and personal experiences both orally and in writing and s/he also knows the difference between spoken/colloquial and written/standard language. The student knows how things can be expressed with different degrees of politeness and can apply that information in her/his own communication.
Contents:
The course is a lower intermediate course. During the course students strengthen their communication skills in ordinary everyday situations and acquire a wider vocabulary and more thorough knowledge of grammar. In addition, students practise understanding and producing Finnish talk and reading newspaper articles.

The topics and communicative situations covered in the course are: requesting different kinds of requests, expressing politeness, making appointments with friends, giving directions, doing the shopping, talking about the past and talking about his/her future plans, hobbies, transactions e.g. in the doctor's and post office.

The structures studied are: more about the imperative, the verb rections, the deverbal noun (-minen), passive present tense, part of the plural declension of nouns, the third infinitive (ma-infinitive), more about sentence types, perfect tense, more about object cases.
Mode of delivery:
Contact teaching and guided self-study.
Learning activities and teaching methods:
Lessons 2 times a week (52 h, including the tests) and guided self-study (83 h)
Target group:
International degree and post-graduate degree students, exchange students and the staff members of the University
Prerequisites and co-requisites:
Completion of the Beginners' Finnish Course 2
Recommended optional programme components:
-
Recommended or required reading:
Gehring, S. & Heinzmann, S.: **Suomen mestari 2,** (chapters 1 - 5)
Assessment methods and criteria:
Regular and active participation in the weekly lessons (twice a week), homework assignments and the tests will be taken into consideration in the assessment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Grading scale is 1-5.
Person responsible:
Anne Koskela
Working life cooperation:
-
Other information:
Sign-up in WebOodi or Tuudo.

900016Y: Intermediate Finnish Course 2, 5 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Proficiency level:
A2.2
Status:
The course is intended for the international students in every faculty at the University of Oulu.
Also students of the Oulu University of Applied Sciences (OAMK) may also participate to this cross-institutional study. See courses, student quota and applying for OAMK students https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Required proficiency level:
A2.1, Completion of the Intermediate Finnish course 1 (900015Y) or the equivalent language skills.
ECTS Credits:
5 ECTS credits
Language of instruction:
Finnish
Timing:
-
Learning outcomes:
By the end of the course the student can communicate in various informal situations in Finnish. The student understands the main points of messages and talk around her/him. S/he can produce simple connected text on topics which are familiar or of personal interest and describe experiences and also report heard content to others.
Contents:

The course is an upper intermediate course. During the course students learn the necessary written and oral skills to be able to cope in informal situations arising during everyday life, work and study. In the course, students practise understanding more Finnish talk and written texts, and finding information and talking about it to other people. In the classes the main stress is on oral exercises and group work.
The topics and communicative situations covered in the course are: transactions e.g. in clothes shops and on the phone, Finnish small talk, reacting in different situations, information and facts about Finnish celebrations and features of colloquial/spoken language.
The structures studied are: the perfect and pluperfect, revision of all the verb tenses, comparison of adjectives, conditional, more about the plural declension of nouns (particularly the plural partitive case), more about object and predicative cases, the passive imperfect.
Mode of delivery:
Contact teaching and guided self-study
Learning activities and teaching methods:
Lessons (52 h, including the tests) and guided self-study (83 h).
Target group:
International degree and post-graduate degree students, exchange students and the staff members of the University.
Students of the Oulu University of Applied Sciences (OAMK) students and OAMK's international and exchange students may also participate to this cross-institutional study. The quota principle is as follows: at least two OAMK students in a course and if there are more places, they are filled according to the queuing principle.
See more information https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Prerequisites and co-requisites:
Completion of the Intermediate Finnish Course 1 or equivalent skills
Recommended optional programme components:
-
Recommended or required reading:
Gehring, S. & Heinzmann, S.: **Suomen mestari 2 (chapters 6 - 8).**
Assessment methods and criteria:
Regular and active participation in the weekly lessons (twice a week), homework assignments and the tests will be taken into consideration in the assessment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
Grading scale is 1-5.
Person responsible:
Anne Koskela
Working life cooperation:
-
Other information:
Sign-up in WebOodi or Tuudo.

781654S: Introductory Organometallic Chemistry, 5 op

Voimassaolo: 01.08.2020 -

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opettajat: Daniela Bezuidenhout

Opintokohteen kielet: English

ECTS Credits:
5 ECTS credits / 135 hours of work
Language of instruction:
English
Timing:
4th or 5th Spring. The course is lectured every other year, next time during the spring 2021.
Learning outcomes:
Upon completion of this course, the student will be familiar with the fundamental principles of Organometallic Chemistry, including the classification, preparation, chemical properties, reactivity and application of organometallic complexes, macromolecules and clusters.
Contents:

- Fundamental principles of organometallic chemistry, including the 18 electron rule (ionic and covalent approaches), MLX classification system.
- Synthesis, chemical properties, reactivity and application of organometallic complexes
- Isolobal analogies
- Metal-metal bonds
- Electron-deficient compounds
- Clusters

Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
40 hours of lectures, 95 hours of self study
Target group:
Chemistry, optional
Prerequisites and co-requisites:
Inorganic chemistry I and II (781301A, 781302A, 780354A) and Organic Chemistry I and II (781305A, 781306A, 781307A)
Recommended optional programme components:
Structural Methods in Inorganic Chemisry 781614S and NMR as analytical tool in organic synthesis 783608S
Recommended or required reading:
- Organometallics, C. Elschenbroich, Wiley-VCH, 2011 or earlier editions.
- L.H. Green, Journal of Organometallic Chemistry, 1995, 500, 127.
- Hoffman, Angewandte Chemie International Edition in English, 1982, 21, 711.
- Wade, Chemistry in Britain, 1975, 11, 177.
- Lecture notes

Assessment methods and criteria:
Final examination
Grading:
The course utilizes a numberical grading scale 0-5. In the numerical scare, zero stands for a fail.
Person responsible:
Daniela Bezuidenhout
Working life cooperation:
No

783639S: Organic Chemistry III, 5 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opettajat: Juha Heiskanen, Johanna Kärkkäinen

Opintokohteen kielet: Finnish

ECTS Credits:
5 credits / 134 hours of work
Language of instruction:
Finnish / English on demand
Timing:
4th autumn – .
Learning outcomes:
After this course, the student is familiar with various organic chemistry reactions, can profoundly explain and analyze mechanisms, and predict reaction outcome.
Contents:
Fixed chapters from the textbook.
Mode of delivery:
Self-study
Learning activities and teaching methods:
134 hours of self study
Target group:
Chemistry, optional
Prerequisites and co-requisites:
Organic Chemistry I (780389A) and Organic Chemistry II (780393A/783643S).

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:
Clayden, J., Greeves, N., Warren, S., Wothers, P.: Organic Chemistry, Oxford University Press, 2001 or Clayden, J., Greeves, N., Warren, S.: Organic Chemistry, Oxford University Press, 2nd edition, 2012.
Assessment methods and criteria:
Contact the responsible teacher to arrange the final examination.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Juha Heiskanen and Johanna Kärkkäinen
Working life cooperation:
No
Other information:
No

780601S: Project work, 12 op

Opiskelumuoto: Advanced Studies

Laji: Course

Vastuuyksikkö: Field of Chemistry

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

ECTS Credits:
12 ECTS credits / 240 hours of work
Language of instruction:
Finnish, English on demand
Timing:
4th autumn-spring
Learning outcomes:
After the laboratory project the student knows a research work and methods of his/her field and has readiness to perform the Pro Gradu Thesis.
Contents:
Laboratory work and written report
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
240 hours of work including laboratory research (min. 120 h practical laboratory work) and a report.
Target group:
Chemistry, compulsory
Prerequisites and co-requisites:
B.Sc. studies in chemistry including the course Research Training (780301A) complited.
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:
Material given by teachers
Assessment methods and criteria:
Laboratory research and a report.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
The course utilizes verbal grading scale pass/fail.
Person responsible:
Matti Niemelä
Working life cooperation:
No
Other information:
Responsible teachers for the course: Chemistry Degree program Professors, Docents, Lectures and Doctor level researchers.

781649S: Sampling and Sample Pretreatment, 5 op

Voimassaolo: 01.08.2015 -
Opiskelumuoto: Advanced Studies
Laji: Course
Vastuuyksikkö: Field of Chemistry
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 134 hours of work
Language of instruction:
Finnish. English on demand.
Timing:
4th or 5th spring. The course is lectured every other year.
Learning outcomes:
After this course student becomes aware of the importance of correct sampling (especially heterogeneous solid materials). The student also gets knowledge how to i) sample and ii) prepare samples for various types of analysis: determination of total element concentrations (incl. ultra trace levels), fractionation of elements and element speciation analysis. At the end of the course the students should have also acquired an understanding of the techniques that are used in sample preconcentration and matrix separation, as well as purification of reagents and laboratory tools when very low element concentrations are measured.
Contents:
Representative sampling and sampling errors, various sample preparation techniques utilizing open and closed systems and their use in the determination of total element concentrations in inorganic and organic sample types. Fusion techniques and fire assay methods. Sample preparation in trace element fractionation and speciation analysis. Systematic errors in analysis (losses and contamination), clean rooms, separation and preconcentration techniques.
Mode of delivery:
Face-to-face teaching
Learning activities and teaching methods:
30 hours of lectures + seminar presentation + 104 hours of self-study
Target group:
Chemistry, optional
Prerequisites and co-requisites:
Introduction to Analytical Chemistry (780111P or 780119P)
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:
Sirén, H., Perämäki, P., Laiho, J.: Esikäsittelyn käsikirja, Kemian Kustannus Oy, 2009 and material handed out by the lecturer.
Assessment methods and criteria:
Final examination or home assignment.
Read more about assessment criteria at the University of Oulu webpage.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Paavo Perämäki
Working life cooperation:
No

781652S: Solid State Chemistry, 5 op

Voimassaolo: 01.08.2015 -
Opiskelumuoto: Advanced Studies
Laji: Course
Vastuuyksikkö: Field of Chemistry
Arvostelu: 1 - 5, pass, fail
Opintokohteen kielet: Finnish

ECTS Credits:
5 ECTS credits / 134 hours of work
Language of instruction:
Finnish, in English as a book examination
Timing:
4th or 5th autum. The course is lectured every other year.
Learning outcomes:
Upon completion the student should have acquired knowledge and understanding of synthesis, structures, spectroscopic properties, reactions, and applications of solid materials.
Contents:
Preparation of solid materials, structures of solids, crystal defects, thermodynamics and reaction kinetics, the effect of outer conditions on some reactions, phase diagrams and their applications, optical, magnetic and electric properties of solid materials, and industrial applications.
Mode of delivery:
Blended teaching
Learning activities and teaching methods:
Activating learning methods: group work 25 h, portfolio 17 h, self-study 92 h.
Target group:
Chemistry, optional
Prerequisites and co-requisites:
Inorganic Chemistry I (780353A or 781301A)
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:
West, A.R.: Solid State Chemistry and its Applications, 2 nd Ed., John Wiley & Sons, Chichester, 2014.
Assessment methods and criteria:
This course unit utilizes continuous assessment, group works and porfolio.
Grading:
The course utilizes a numerical grading scale 0-5. In the numerical scale zero stands for a fail.
Person responsible:
Minna Tiainen
Working life cooperation:
No

900027Y: Special Course in Finnish: Writing Skills, 3 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Proficiency level:
B1/B2, according to the Common European Framework.
Status:
Course is intended for the international students in every faculty at the University of Oulu.
Students of the Oulu University of Applied Sciences (OAMK) students and OAMK's international and exchange students may also participate to this cross-institutional study. The quota principle is as follows: at least two OAMK students in a course and if there are more places, they are filled according to the queuing principle.See more information https://www.oulu.fi/forstudents/crossinstitutionalstudy.
Required proficiency level:
A2.2 Completion of the Finnish for Advanced Students (900020Y) or the equivalent language skills.
ECTS Credits:
3 ECTS credits
Language of instruction:
Finnish
Timing:
-
Learning outcomes:

By the end of the course the student can write coherent and detailed descriptions and summaries about various matters. S/he is able to summarize text and justify his/her own statements of opinions. In addition, the student knows the steps of the writing process and understands the significance of a text's function and target audience. S /he can also differentiate between formal and informal writing styles.

Contents:
During the course students develop their writing skills in Finnish and are guided in the drafting of different text types and documents needed in studies and work. In the course students learn how to write informal and formal letters, an argument-essay, a summary, a job application and a report.

Mode of delivery:
One contact lesson at the beginning of the course and guided independent studying using online

Learning activities and teaching methods:
The course will be held online using a Moodle environment.

Target group:
Course is intended for the international students in every faculty at the University of Oulu.
Students of the Oulu University of Applied Sciences (OAMK) students and OAMK's international and exchange students may also participate to this cross-institutional study. The quota principle is as follows: at least two OAMK students in a course and if there are more places, they are filled according to the queuing principle.See more information https://www.oulu.fi/forstudents/crossinstitutionalstudy.

Prerequisites and co-requisites:
Completion of the Intermediate Finnish Course 2

Recommended optional programme components:
-

Recommended or required reading:
Web based material in Moodle.

Assessment methods and criteria:
To pass the course, the student must complete all the required writing assignments.
Read more about assessment criteria at the University of Oulu webpage.

Grading:
Grading is on a pass/fail basis.

Person responsible:
Anne Koskela

Working life cooperation:
-

Other information:
Sign-up in WebOodi or in Tuudo. Staff members in staff training portal.

900017Y: Survival Finnish, 2 op

Voimassaolo: 01.08.1995 -

Opiskelumuoto: Language and Communication Studies

Laji: Course

Vastuuyksikkö: Languages and Communication

Arvostelu: 1 - 5, pass, fail

Opintokohteen kielet: Finnish

Leikkaavuudet:

ay900017Y	Survival Finnish Course (OPEN UNI)	2.0 op

Proficiency level:
A1.1

Status:
The course is intended for the international students in every faculty at the University of Oulu.

Required proficiency level:
No previous Finnish studies.

ECTS Credits:
2 ECTS cr

Language of instruction:
Finnish and English.

Timing:
-

Learning outcomes:

By the end of the course the student can understand and use some very common everyday expressions and phrases, and s/he can locate informational content in simple texts and messages. The student also knows the basic characteristics of Finnish language and Finnish communication styles.

Contents:

This is an introductory course which aims to help students to cope with the most common everyday situations in Finnish. During the course, students learn some useful everyday phrases, some general features of the vocabulary and grammar, and the main principles of pronunciation.

The topics and communicative situations covered in the course are: general information about the Finnish language, some politeness phrases (how to greet people, thank and apologize), introducing oneself, giving and asking for basic personal information, numbers, some time expressions (how to tell and ask the time, days of the week, time of day), food, drink and asking about prices.

The structures studied are: personal pronouns and their possessive forms, forming affirmative, negative and interrogative sentences, the conjugation of some verbs, the basics of the partitive singular and some local cases for answering the ‘where'-question.

Mode of delivery:

Contact teaching, on-line learning and independent work. There will be organized also one on-line group in each semester.

Learning activities and teaching methods:

Lessons 2 times a week (26 h, including the final exam) and guided self study (24 h).

Target group:

International degree and post-graduate degree students, exchange students and the staff members of the University.

Prerequisites and co-requisites:

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Recommended optional programme components:

-

Recommended or required reading:

Will be provided during the course.

Assessment methods and criteria:

Regular and active participation in the weekly lessons (twice a week), homework assignments and written exam at the end of the course will be observed in assessment.

Read more about assessment criteria at the University of Oulu webpage.

Grading:

Grading scale is on a pass/fail basis.

Person responsible:

Arja Haapakoski

Working life cooperation:

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Other information:

Sign-up in WebOodi or in Tuudo.