



Bachelor í jarð- og havfrøði

1. lestrarhálvár	2. lestrarhálvár	3. lestrarhálvár	4. lestrarhálvár	5. lestrarhálvár	6. lestrarhálvár
Náttúru-landfrøði	Fysisk & føroysk jarðfrøði	Innfleiðing til jarðalisfrøði	Legugrýtis-jarðfrøði	Leitingar- og umhvørvis-jarðalisfrøði	Bachelor ritgerð
Mekanikkur og hitalæra	Elektromagnetisma	Dátugreining	Nýggjari alisfrøði	Kolvetnis-jarðfrøði	
Støddfrøði 1	Støddfrøði 2	Støddfrøði 3	Støddfrøði 4	Numerisk havmodellering	
Almenn havfrøði	Vesku-mekanikkur	Havrørslufrøði	Smá- og medium-skala havfrøði	Yvirflatueldur og sjóvarfall	Valskeið

Útbúgvingin tekur trý ár, og er skipað í seks lestrarhálvár. Í fyrstu fimm lestrarhálvárunum eru fyra eins stór skeið à 7.5 ECTS. Í sætta lestrarhálvári er endaliga bachelorritgerðin umframt eitt skeið. Trýst á eitt skeið fyri at lesa skeiðslýsingina.

BSc in Earth and Ocean Science

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Physical Geography	Physical and Faroese Geology	Introduction to Geophysics	Sedimentary Geology	Exploration & Environmental Geophysics	Bachelor Thesis
Mechanics and thermodynamics	Electromagnetism	Data analysis	Modern physics	Petroleum Geoscience	
Mathematics 1	Mathematics 2	Mathematics 3	Mathematics 4	Numerical Ocean Modelling	
General Oceanography	Fluid Mechanics	Dynamical Oceanography	Small- to Medium-scale Oceanography	Surface Waves and Tides	Optional

The 3-year programme is structured in six semesters. The first five semesters contain four equally sized (7.5 ECTS) courses. The sixth semester contains the bachelor thesis and one additional course. Click on a course to read the course description.



Dømi um valskeið / Optional courses - examples

Trýst á eitt skeið fyri at lesa skeiðslýsingina / *Click on a course to get the description of it.*

- Leitingarseismikkur / *Exploration Seismology*
- Gosgrýtis- og umskaparjarðfrøði / *Igneous & Metamorphic Geology*
- Grundleggjandi brunntøkni / *Basic Reservoir Engineering*

Skeið á øðrum útbúgvingum kunnu eisini veljast sum valskeið / *Modules from other degree programmes may also be taken as optional.*

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Heiti	Almenn havfrøði		Title	General Oceanography	
Skeið nr 3402.08	ECTS: 7.50	Fortreytir: Miðnámsprógv	Course no. 3402.08	ECTS: 7.50	Prerequisites: Upper Secondary School
Endamál	At geva eina breiða lýsing av hugtøkum, ið vanliga verða nýtt innan havfrøði, og av nøkrum vanligum fyribrigdum í havinum umframt eina almenna lýsing av havinum á heimaleiðunum og í heimshøvunum. Skeiðið gevur eisini eitt stutt yvirlit yvir týðandi eginleikar og tilgongdir í luftini, veður, veðurlag og veðurlagsbroytingar.		Objective	To give an introduction to concepts and terms in oceanography and a general description of some physical processes in the ocean, as well as a general description of the world oceans with special emphasis on the waters surrounding the Faroes. The course also gives a brief overview of properties and processes in the atmosphere, weather, climate, and climate change.	
Evni	<p>Alment: Havbotnurin, sjógvur, hiti, frystipunkt, saltinnihald, evnisvekt, termoklinar, haloklinar, skurðar, profilar.</p> <p>Aldur: Alduferð, aldulongd, alduhædd, frekvensur, perioda, orka, tsunamis, ljóð og ljós í sjónum, refraktión og aldugerð og dissipatióin.</p> <p>Rák: Coriolis, Ekmanrák, upprák, turbulensur, vinddrivið rák og termohalint rák í heimshøvunum, høvuðsstreymarnir í heimshøvunum, streymar og vatnmassar á Føroya leiðunum.</p> <p>Sjóvarfall: Jarðar-mána-sól skipanin, sjóvarfalskraft, amfidromi, sjóvarfalskort, residual streymur, og sjóvarfall kring jarðarknøttin og serliga kring Føroyar.</p> <p>Landgrunnur: Streymur, residual, blanding og frontar.</p> <p>Firðir: Estuarint rák, útskiftingartíð, lagdeiling, blanding, útskifting.</p> <p>Luftin: Samanseting, skipan, hiti, væta, skýggj, avfall, lufttrýst og vindur, veður, veðurlag og veðurlagsbroytingar.</p> <p>Sum part av skeiðnum skulu næmingarnir taka lut í fjarðakanning við Magnusi Heinasyni og skriva frágreiðing um tað.</p>		Topics	<p>General: Ocean floor, seawater, temperature, freezing point, salinity, density, thermocline, halocline, oceanographic sections and profiles.</p> <p>Waves: Wave speed, wavelength, wave height, frequency, period, energy, light and sound, tsunamis, refraction, wave generation and dissipation.</p> <p>Currents: Coriolis, Ekmandrift, upwelling, turbulence, wind-driven and thermohaline circulation in the world oceans, main currents in the world oceans and currents and water masses around the Faroe Islands.</p> <p>Tides: Earth-Moon-Sun system, tidal force, amphidromic point, tidal maps, residual current, and tides around the globe and in particular around the Faroe Islands.</p> <p>Fjords: Estuarine circulation, stratification, mixing, water exchange.</p> <p>Shelf: Currents, residual, mixing and fronts.</p> <p>Atmosphere: composition, structure, temperature, moisture, clouds, precipitation, air pressure and winds, weather patterns and storms, climate and climate change.</p> <p>As part of the course, the students have to participate in a short fjord cruise with R/V Magnus Heinason and write a report based on this.</p>	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and exercises	
Døming	Skrivlig próvtøka. Ongi hjálparamboð ella bøkur eru loyvd, bert roknimaskina. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. No auxiliary material allowed except calculator. The existing grade scale will be used.	
Lestrarlisti	Seawater, Open University, 2nd edition Havið, Bogi Hansen, Føroya Skúlabókagrunnur, 2000 Brot (Kap. 16-20) úr: Earth Science. Tarbuch and Lutgens.		Literature	Havið by Bogi Hansen, Føroya Skúlabókagrunnur, 2000 Seawater, Open University, 2nd edition Excerpts (ch. 16-20) from: Earth Science	
Samskipti	Bogi Hansen; email: bogihan@frs.fo		Contact	Bogi Hansen; email: bogihan@frs.fo	

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Heiti	Støddfrøði 1		Title	Mathematics 1	
Skeið nr 3002.08	ECTS: 7.50	Fortreytir: Miðnámsprógv við støddfrøði á A-stigi	Course no. 3002.08	ECTS: 7.50	Prerequisites: Upper Secondary School with A-level in mathematics
Endamál	At kunna studentarnar um støddfrøðigreining og linjurætta algebra.		Objective	To give the students an introduction to mathematical analysis and linear algebra.	
Evni	Innleiðandi støddfrøði. Kompleks tøl og hyperbolskar funktiúnir. Rekkjur og markvirði, konvergensur hjá óendaligum rekkjum, Taylor rekkjur. Partiel differentiering, stationer virði hjá funktiónum við fleiri variablum. Multipul integral, areal og volumen. Vektor algebra, falding av vektorum. Matrisur og vektorrum, matrisu algebra, eginvektorar og eginvirði, sambundnar linjuligar líkningar. Forritið Maple og umhvørvið tess.		Topics	Preliminary algebra and calculus. Complex numbers and hyperbolic functions. Series and limits, convergence of infinite series, Taylor series. Partial differentiation, stationary values of functions of several variables. Multiple integrals, areas and volumes. Vector algebra, multiplication of vectors. Matrices and vector spaces, matrix algebra, eigenvectors and eigenvalues, simultaneous linear equations. Maple software environment.	
Undirvísing	Fyrilestrar og uppgávurokning. Venjing við Maple forritinum.		Instruction	Lectures and exercises. Training with Maple software.	
Døming	Skrivlig próvtøka í fyra tímar. Hjalparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Auxiliary exam material allowed. The existing grade scale will be used.	
Lestrarlisti	Mathematical Methods for Physics and Engineering, K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press. Tilfar um forritið Maple.		Literature	Mathematical Methods for Physics and Engineering K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press. Notes on Maple software.	
Samskipti	Petur Zachariassen; email: peturz@setur.fo		Contact	Petur Zachariassen; email: peturz@setur.fo	

Heiti	Mekanikkur og hitalæra		Title	Mechanics and thermodynamics	
Skeið nr 3007.08	ECTS: 7.50	Fortreytir: Miðnámsprógv	Course no. 3007.08	ECTS: 7.50	Prerequisites: Upper Secondary School
Endamál	At seta studentarnar væl inn í grundleggjandi lógir og roknihættir í mekanikkini og í hitalærni.		Objective	To familiarize students with the fundamental laws and methods in classical mechanics and thermodynamics.	
Evni	Kinematikkur, rørsla í eini og fleiri dimensiónum, Newton's lógir, varðveitslusetningar, arbeiði og orka, konservativ kraftfelt, snaringar, bitlaskipanir, fastir lutir, sveiggj, gravitátión, innleiðsla í spesiella relativitetsástøði, javnvág og elastisitetsástøði, veskumekanikkur, temperaturur og kinetisk gassástøði, hitaorka og hitakapasitetur, 1. og 2. hævudssetningur í hitalærni.		Topics	Kinematics, motion in one, two and three dimensions, Newton's laws of motion, conservation laws, work and energy, conservative forces, rotation, particle systems, rigid bodies, oscillatory motion, gravitation, introduction to special relativity, equilibrium and elasticity, fluids, temperature and kinetic theory of gases, heat, heat capacity, first and second laws of thermodynamics.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and problem solving.	
Døming	Skrivlig próvtøka í fyra tímar. Øll vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Reference material permitted. The existing grade scale will be used.	
Lestrarlisti	Paul A. Tipler and Gene Mosca: Physics for Scientists and Engineers -Volume 1: Mechanics, Oscillations and Waves, Thermodynamics, 5th edition, Freeman-Worth.; M. Alonso, E. J. Finn: Fundamental University Physics, Mechanics and Thermodynamics, Vol 1, 2. útgáva., Addison-Wesley		Literature	Paul A. Tipler and Gene Mosca: Physics for Scientists and Engineers -Volume 1: Mechanics, Oscillations and Waves, Thermodynamics, 5th edition, Freeman-Worth.; M. Alonso, E. J. Finn: Fundamental University Physics, Mechanics and Thermodynamics, Vol 1, 2nd edition, Addison-Wesley	
Samskipti	Hans Pauli Joensen; email: hanspj@setur.fo		Contact	Hans Pauli Joensen; email: hanspj@setur.fo	

Heiti	Náttúruleyðaføøð		Title	Physical Geography	
Skeið nr 3302.08	ECTS: 7.50	Fortreytir: Miðnámsprógv (kravt)	Course no. 3302.08	ECTS: 7.50	Prerequisites: Upper Secondary School (mandatory)
Endamál	At lýsa grundleggjandi náttúruleyðaføøðilig hugtøk og dynamiska samanspælið millum veøurlag, landslag og tilfar á landi og havbotni í sambandi við umhvørvisbroytingar við serligum atlitum at Føroyum.		Objective	The course introduces basic concepts of physical geography and the dynamic interactions among climate, landforms and materials of the Earth's land surface and seafloor in relation to environmental change, and with special reference to the physical geography of the Faroe Islands.	
Evni	Gongustjørnan Jørðin. Orkujavnvágin. Atmosfera og veøurløg. Tilfar og tilgongdir á jarðarskorpuni og innaní Jørðini. Vatn og vatnjavnvágin. Glerseting. Biogeografiskar tilgongdir, leysjörð og jarðartilfar. Jarðföøð. Jarðvandar. Landslög, veøurlög og náttúruleyðaføøðir í føroyska umhvørvinum.		Topics	Planet Earth and energy balance. Atmosphere and climates. Materials and processes of the Earth's surface and interior. Water and water balance. Glaciation. Biogeographical processes, soils and sediments. Geology. Geohazards. The landforms, climate and surface processes of the Faroe Islands region.	
Undirvísing	Fyrilestrar og venjingar. Útferð í Føroyum og skrivning av útferðarfrágreiðing.		Instruction	Lectures and exercises. A field excursion in the Faroe Islands and field excursion report.	
Døming	Frágreiðing um útferð skal latast inn. Skrivlig próvtøka í fýra tímar. Ongi hjálparamboð loyvd til próvtøkuna (orðabók er tó loyvd). Frágreiðingin telur 25%, og próvtøkan telur 75% av endaliga próvtalinum. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Report on the excursion. Four-hour written examination. No auxiliary exam material is allowed (dictionary allowed). The field excursion report counts 25% and the examination 75% of the final grade. The existing grade scale will be used.	
Lestrarlisti	Introducing physical geography. Strahler and Strahler. John Wiley and Sons. Ella: Earth Science. Tarbuch and Lutgens. Greinir um føroyska náttúruleyðaføøð		Literature	Introducing Physical Geography. Strahler and Strahler. John Wiley and Sons. Or: Earth Science. Tarbuch and Lutgens Additional material with regard to the Faroese nature will be provided.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

Heiti	Vesku mekanikkur		Title	Fluid Mechanics	
Skeið nr 3403.08	ECTS: 7.50	Fortreytir: 3002 Støddfrøði 1; 3007 Alisfrøði1	Course no. 3403.08	ECTS: 7.50	Prerequisites: 3002 Mathematics 1; 3007 Physics 1
Endamál	At geva eina fatan av rørslum hjá veskum og gassum, sum er gagnlig í jarðalisfrøðiligum og verkfrøðiligum uppgávum.		Objective	To give an understanding of the motion of fluids and gases, considering geophysical and fluid engineering subjects.	
	Alisfrøðiligar støddir hjá vesku, vesku statistikkur, kreftir í veskum, grundleggjandi líkningar í vesku-hydrodynamikki, dynamiskur similaritetur, Reynold's tal, viskøsk og ikki-viskøsk rák, rák framvið einum sylindara, hydrodynamisk lyft og mótstøða, rák í rørum, markløg, lagdeildar veskur, hydrodynamiskur instabilitetur, turbulens.		Topics	Physical properties of fluids, fluid statics, forces in fluids, the basic equations of hydrodynamics, dynamic similarity, Reynold's number, viscous and inviscous flow, pipe flow, flow around a cylinder, boundary layers, hydrodynamic lift and drag, stratified fluids, hydrodynamic instability, turbulence.	
Undirvísing	Fyrilestrar, uppgávurokning og starvstovuvenjingar.		Instruction	Lectures, problem solving and laboratory exercises.	
Døming	Góðkendar frágreiðingar frá starvstovuvenjingunum og skrivlig próvtøka í fyra tímar. Øll vanlig hjálparamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Approved laboratory reports and four-hour written examination with all usual aids allowed. The existing grade scale will be used.	
Lestrarlisti	D. J. Tritton: Physical Fluid Mechanics. Van Nostrand Reinhold (UK) Co. Ltd. Haraftrat vegleiðingar til starvsstovuvenjingar.		Literature	D. J. Tritton: Physical Fluid Mechanics. Van Nostrand Reinhold (UK) Co. Ltd, and manual to laboratory exercises	
Samskipti	Knud Simonsen; email: knuds@setur.fo		Contact	Knud Simonsen; email: knuds@setur.fo	

Heiti	Støddfrøði 2		Title	Mathematics 2	
Skeið nr 3003.08	ECTS: 7.50	Fortreytir: 3002 Støddfrøði 1	Course no. 3003.08	ECTS: 7.50	Prerequisites: 3002 Mathematics 1
Endamál	At kunna studentarnar um vektorrokning og vanligar differentiallíkningar við atliti at nýtslu innan alisfrøði og verkfrøði.		Objective	To give the students an introduction to vector calculus and ordinary differential equations with applications in physics and engineering.	
Evni	Vektorrokning, differentiering og integratióin av vektorum, formlar fyri vektor operatorar. Linju-, flatu- og rúmintegral, útrokning av flatu- og rúmintegralum, integralformar fyri grad, div and curl, Green og Stokes setningar. Fourier rekkjur. Fourier and Laplace transformar. Vanligar differentiallíkningar av fyrsta ordan og hægri ordan. Rekkjuloytnir fyri vanligar differentiallíkningar. Eginfunktiós metodur fyri differentiallíkningar. Serligar funktióinir.		Topics	Vector calculus, differentiation and integration of vectors, vector operator formulae. Line, surface and volume integrals, evaluating surface and volume integrals, integral forms for grad, div and curl, Green's and Stokes' theorems. Fourier series. Fourier and Laplace transforms. First-order and higher-order ordinary differential equations. Series solutions of ordinary differential equations. Eigenfunction methods for differential equations. Special functions.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and exercises.	
Døming	Skrivlig próvtøka í fyra tímar. Hjalparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Auxiliary exam material allowed. The existing grade scale will be used.	
Lestrarlisti	Mathematical Methods for Physics and Engineering, K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press.		Literature	Mathematical Methods for Physics and Engineering K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press.	
Samskipti	Petur Zachariassen; email: peturz@setur.fo		Contact	Petur Zachariassen; email: peturz@setur.fo	

Heiti	Elektromagnetisma		Title	Electromagnetism	
Skeið nr 3008.08	ECTS: 7.50	Fortreytir: 3007 Mekanikkur og hitalæra (kravt)	Course no. 3008.08	ECTS: 7.50	Prerequisites: 3007 Mechanics and thermodynamics (mandatory)
Endamál	At geva studentunum grundleggjandi kunnleika til hugtøk og alisfrøðiligar lógir, ið eru galdandi í elektromagnetismu.		Objective	To give the students knowledge of the fundamental concepts and physical laws applicable in electromagnetic theory.	
Evni	Elektrisk løðing og elektriskur streymur. Coulomb kraft. Elektromagnetisk felt. Elektrostatisk potentialir. Kapacitansur. Dielektrika. Elektriskar streymræsir. Støðug magnetfelt. Magnetfelt í føstum evnum. Elektromotorisk kraft. Induktióin. Líkningar Maxwells. Elektromagnetiskar aldur. Løddir bitlar, ið flyta seg í støðugum elektriskum og magnetiskum feltum. Elektrisk og magnetisk orka. Poynting vektor. Ljós. Optikkur.		Topics	Electric charge and current, Coulomb's law, electrostatic fields, electrostatic potentials, capacitance, dielectrics, electric circuits, magnetostatic fields, magnetic fields in solids, electromotive force, induction, Maxwell equations, electromagnetic waves, motion of charged particles in electro- and magnetostatic fields, electric and magnetic energy, Poynting vector. Light. Optics.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and Problem Solving.	
Døming	Skrivlig próvtøka í fyra tímar. Øll vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Reference material permitted. The existing grade scale will be used.	
Lestrarlisti	Paul A. Tipler and Gene Mosca: Physics for scientists and engineers, Vol 2 : Electricity and Magnetism. Light. 2004 5th edition, W. H. Freeman and Comany; Arthur F. Kip: Fundamentals of Electricity and Magnetism, 2nd edition, McGraw-Hill.		Literature	Paul A. Tipler and Gene Mosca: Physics for scientists and engineers, Vol 2 : Electricity and Magnetism. Light. 2004 5th edition, W. H. Freeman and Comany; Arthur F. Kip: Fundamentals of Electricity and Magnetism, 2nd edition, McGraw-Hill.	
Samskipti	Hans Pauli Joensen; email: hanspj@setur.fo		Contact	Hans Pauli Joensen; email: hanspj@setur.fo	

Heiti	Fysisk og feroysk jarðfrøði		Title	Physical and Faroese Geology	
Skeið nr 3303.08	ECTS: 7.50	Fortreytir: 3302 Náttúruleiðslufrøði (tilmælt)	Course no. 3303.08	ECTS: 7.50	Prerequisites: 3302 Physical Geography (recommended)
Endamál	At geva studentunum eina innføring til almennu jarðfrøðina og Føroya jarðfrøði.		Objective	To give the students an introduction to general geology including the geology of the Faroe Islands.	
Evni	Jørðin í rúmd og tíð, grundleggjandi steinfrøði, innaru jarðfrøðiligu tilgongdir (innara jørðin, plátuvond, tilgongdir í gróti, umskapað grótsløg), ytru jarðfrøðiligu tilgongdir (máan og álega, ísjarðfrøði, havjarðfrøði, veðurlagsbroytingar) og jarðfrøðilig lagskipan. Føroya jarðfrøði verður gjøgnumgingin og skeiðið bjóðar til jarðfrøðiligar útferðir.		Topics	The Earth in space and time, basic mineralogy, geology of the Earth's interior (plate tectonics, magma petrology, metamorphosis), geology of the Earth's surface (erosion and deposition, glacial geology, marine geology, climate change) and structural geology. The geology of the Faroe Islands will be introduced and the course offers field trips.	
Undirvísing	Fyrilestrar, venjingar, útferðir og rapport.		Instruction	Lectures, exercises, excursion and excursion report.	
Døming	Frágreiðing frá útferðum skal latast inn. Skrivlig próvtøka í fýra tímar. Ongi hjálparamboð loyvd (orðabók loyvd). Rapportin telur 25% og próvtøkan telur 75% av endaliga próvtalinum. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Report on excursions. Four-hour written examination. No auxiliary exam material is allowed (dictionary allowed). The 13-grade scale will be used. The excursion report counts 25% and the examination 75% of the final grade. The existing grade scale will be used.	
Lestrarlisti	Dynamic Earth: An Introduction to Physical Geology, BJ Skinner, SC Porter og J Park, 5th edition. John Wiley & Sons, 2003, ISBN: 0-471-15228-5. Upphav Føroya í orðum, myndum og á korti: J. Rasmussen og A Noe-Nygaard, Danmarks Geologiske Undersøgelse, 1990, ISBN: 87-88640-58-2. Føroya Jarðfrøði: J Rasmussen, I Joensen og P á Hædd, Føroya Skúlabókagrunnur, 2005, ISBN: 99918-0-092-1. Eykatilfar kann latast av læraranum.		Literature	Dynamic Earth: An Introduction to Physical Geology, BJ Skinner, SC Porter og J Park, 5th edition. John Wiley & Sons, 2003, ISBN: 0-471-15228-5. Upphav Føroya í orðum, myndum og á korti: J. Rasmussen og A Noe-Nygaard, Danmarks Geologiske Undersøgelse, 1990, ISBN: 87-88640-58-2. Føroya Jarðfrøði: J Rasmussen, I Joensen og P á Hædd, Føroya Skúlabókagrunnur, 2005, ISBN: 99918-0-092-1. Additional material may be provided by the instructors.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

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Heiti	Havrørslufrøði		Title	Dynamical Oceanography	
Skeið nr 3404.08	ECTS: 7.50	Fortreytir: 3402 Almenn havfrøði; 3007 Alisfrøði 1; 3403 Veskumekanikkur; 3002 Støddfrøði 1; 3003 Støddfrøði 2	Course no. 3404.08	ECTS: 7.50	Prerequisites: 3402 General Oceanography; 3007 Physics 1; 3403 Fluid Mechanics; 3002 Mathematics 1; 3003 Mathematics 2
Endamál	At lýsa tær grundleggjandi lógirnar, sum stýra streymum og øðrum rørslum í havinum og vísa, hvussu tær elva til tey ymsu rákini í heimshøvunum.		Objective	To introduce the basic laws of motion in the sea and show how they lead to the various large-scale flows in the world oceans.	
Evni	Ávirkanin frá luftini, hitajavnvág, hiti, saltinnihald, evnisvekt, rørslulíkingar, gníggging, stabilitetur, Ekman og Langmuir rørslur, geostrofir streymar, Sverdrup líkningin, Munk loysnin, vortisitetur, Tað djúpa rákið, Streymarnir við Ekvator, El Niño.		Topics	Atmospheric influences, the oceanic heat budget, temperature, salinity, density, the equations of motion, frictional flows, response to wind, geostrophic currents, wind-driven ocean circulation, vorticity, deep circulation, equatorial processes, El Niño.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and problem solving.	
Døming	Skrivlig próvtøka í fyra tímar. Øll vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. All usual aids allowed. The existing grade scale will be used.	
Lestrarlisti	Introduction to Physical Oceanography, Robert H. Stewart		Literature	Introduction to Physical Oceanography, Robert H. Stewart	
Samskipti	Bogi Hansen; email: bogihan@frs.fo		Contact	Bogi Hansen; email: bogihan@frs.fo	

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Heiti	Støddfrøði 3		Title	Mathematics 3	
Skeið nr 3004.08	ECTS: 7.50	Fortreytir: 3004 Støddfrøði 2	Course no. 3004.08	ECTS: 7.50	Prerequisites: 3004 Mathematics 2
Endamál	At kunna studentarnar um numeriskar metodur, sannlíkindi og hagfrøði.		Objective	To give the students an introduction to numerical methods, probability and statistics.	
Evni	<p>Numeriskar metodur: Algebraiskar og transcendentalar líkningar, Newton metodur, sambundnar linjuligar líkningar, Gauss eliminatióin og Gauss-Seidel iteratióin. Numerisk integratióin, trapes og Simpson reglur, Gauss integratióin, Monte Carlo metodur. Endaligir differensir. Differential- og differenslíkningar. Loysnir við Taylor rekkjum, prediktióin og korrektióin. Runga-Kutta metodur. Hægri ordan og partiellar differentillíkningar.</p> <p>Sannlíkindi og hagfrøði: Stokastiskir variablar og býti. Týðandi diskret og kontinuer býti. Sentralvirðissetningurin. Felags býti. Royndir, sýni og populatióinir. Sýnisfunktióinir. Estimatorar og sýnisbýti, standarafeilur og konfidensmark. Nakrir grundleggjandi estimatorar. Maximum-likelihood metódan. Linjulig og ólinjulig minstukvadrat metodur. Test av hypotesum.</p>		Topics	<p>Numerical methods: Algebraic and transcendental equations, Newton's methods. Simultaneous linear equations, Gaussian elimination and Gauss–Seidel iteration. Numerical integration, trapezium and Simpson's rules, Gaussian integration, Monte Carlo methods. Finite differences. Differential and difference equations. Taylor series solutions, prediction and correction, Runge–Kutta methods. Higher-order and partial differential equations. Matlab software environment.</p> <p>Probability and statistics: Random variables and distributions. Important discrete and continuous distributions. The central limit theorem. Joint distributions. Experiments, samples and populations. Sample statistics. Estimators and sampling distributions, standard errors and confidence limits. Some basic estimators. Maximum-likelihood method. Linear and non-linear least squares. Hypothesis testing.</p>	
Undirvísing	Fyrilestrar og uppgávurokning. Venjing við forritinum Matlab.		Instruction	Lectures and exercises. Training with Matlab software.	
Døming	Skrivlig próvtøka í fyra tímar. Hjálparamboð loyvd. Stóruppgávur. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Auxiliary exam material allowed. Exercise reports. The existing grade scale will be used.	
Lestrarlisti	Mathematical Methods for Physics and Engineering, K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press. Supplerandi tilfar um numeriskar metodur. Tilfar um forritið Matlab.		Literature	Mathematical Methods for Physics and Engineering K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press. Supplementary notes on numerical methods. Notes on Matlab software.	
Samskipti	Petur Zachariassen; email: peturz@setur.fo		Contact	Petur Zachariassen; email: peturz@setur.fo	

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Heiti	Dátugreining		Title	Data analysis	
Skeið nr 3006.08	ECTS: 7.50	Skeiðið er í umbúnað	Course no. 3006.08	ECTS: 7.50	The course is under construction

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Heiti	Innleiðing til jarðalisfrøði		Title	Introduction to Geophysics	
Skeið nr 3304.08	ECTS: 7.50	Fortreytir: 3303 Fysisk og føroysk jarðfrøði (tilmælt); 3008 Elektromagnetisma (tilmælt); 3003 Støddfrøði 2 (kravt)	Course no. 3304.08	ECTS: 7.50	Prerequisites: 3303 Physical and Faroese Geology (recommended); 3008 Electromagnetism (recommended); 3002 Mathematics 2 (mandatory)
Endamál	At geva studentarnunum eina innleiðslu til almennu alisfrøðina hjá føstu jarðarpørtunum, bæði í globalu jarðalisfrøðina og leitingar jarðalisfrøðina.		Objective	To give the students an introduction to general solid-Earth geophysics, both global and exploration geophysics.	
Evni	Jørðin og sólkervið; tyngdarkraft, landmáting, tyngdarkanningar; seismisk aldu- og strálugongdarástøði; jarðskjálvta seismologi og jarðarinnar innari bygnaður; refraktións- og reflektións-seismikkur; geokronologi; geislavirkni og hiti; geoelektrisitet, electromagnetiskar methodur, geomagnetisma og paleomagnetisma; magnetiskar kanningar; plátutektonikk.		Topics	The Earth and Solar System; gravitation, geodesy, gravity surveys; theory of seismic waves and rays, earthquake seismology and internal structure of the Earth; refraction and reflection seismology; geochronology, radioactivity and heat; geoelectricity, electromagnetic methods, geomagnetism, paleomagnetism, magnetic surveys; plate tectonics.	
Undirvísing	Fyrilestrar, uppgávurokning og/ella verkætlanir.		Instruction	Lectures, problem solving and/or project work.	
Døming	Døming av innlatnum/ari uppgávum/verkætlan (25%) og fyra tímars skrivlig próvtøka (75%). Vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Evaluation of submitted exercises/project (25%) and four-hour written examination (75%). All normal auxiliary exam material permitted. The existing grade scale will be used.	
Lestrarlisti	Fundamentals of Geophysics: W Lowrie, 2nd edition, Cambridge University Press, 2007, ISBN-13: 978-0-521-67596-3 – ella – Looking into the Earth: AE Mussett og MA Khan, 1st edition, Cambridge University Press, 2000, ISBN: 0-521-78574-X. Upprit frá fyrilestrum.		Literature	Fundamentals of Geophysics: W Lowrie, 2nd edition, Cambridge University Press, 2007, ISBN-13: 978-0-521-67596-3 – or – Looking into the Earth: AE Mussett and MA Khan, 1st edition, Cambridge University Press, 2000, ISBN: 0-521-78574-X. Lecture notes.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

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Heiti	Smá- og medium-skala havfrøði		Title	Small- to medium-scale Oceanography	
Skeið nr 3405.08	ECTS: 7.50	Fortreytir: 3404 Hav-rørslufrøði	Course no. 3405.08	ECTS: 7.50	Prerequisites: 3404 Dynamical Oceanography
Endamál	At lýsa grundleggjandi smá- og miðal skala tilgongdir í havinum.		Objective	To give an overview of key small- to medium-scale processes in the ocean.	
Evni	Tyngdaraldur á vatnskorpu, internar aldur, turbulensur í homogenum og lagbýttum sjógv, K-H instabilitetur, Richardson tal, blanding og flutningur av evnum í havinum, tað ovasta blandingslagið, rák í firðum, konvektión í havinum, ferðing av ljósi og ljóði gjøgnum sjógv.		Topics	Gravity waves on surfaces and interfaces in layered fluids, internal gravity waves in continuously stratified fluids, turbulence in homogeneous and stratified waters, K-H instability, Richardson number, mixing and transport of properties in the ocean, mixed-layer dynamics, fjord dynamics, convection in the ocean, light and sound propagation in the ocean.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and problem solving.	
Døming	Skrivlig próvtøka í fyra tímar. Øll vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. All usual aids allowed. The existing grade scale will be used.	
Lestrarlisti	Notur og vísindaligar ritgerðir.		Literature	Notes and scientific publications.	
Samskipti	Bogi Hansen; email: bogihan@frs.fo		Contact	Bogi Hansen; email: bogihan@frs.fo	

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Heiti	Støddfrøði 4		Title	Mathematics 4	
Skeið nr 3005.08	ECTS: 7.50	Fortreytir:	Course no. 3005.08	ECTS: 7.50	Prerequisites:
Endamál	At kunna studentarnar um partiellar differentiallíkningar og kompleksar variablar.		Objective	To give the students an introduction to partial differential equations and complex variables.	
Evni	Partiellar differentiallíkningar. Generellar og partikularar loysnir. Aldu- og diffusióslíkningar. Separatió av variablum, superposition, integral transform metodur, Green funktióir. Variatiónsrokning, Euler–Lagrange líkning, eginvirði problem. Integral líkningar. Kompleksar variablar, Cauchy–Riemann relatióir, konformar transformatióir, Cauchy setningurin, Cauchy integral formul, Taylor og Laurent rekkjur, residue setningurin. Nýtsla av kompleksum variablum. Tensorar.		Topics	Partial differential equations. General and particular solutions. The wave and diffusion equations. Separation of variables, superposition, integral transform methods, Green’s functions. Calculus of variations, Euler–Lagrange equation, eigenvalue problems. Integral equations. Complex variables, Cauchy–Riemann relations, conformal transformations, Cauchy’s theorem, Cauchy’s integral formula, Taylor and Laurent series, residue theorem. Applications of complex variables. Tensors.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and exercises.	
Døming	Skrivlig próvtøka í fyra tímar. Hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Auxiliary exam material allowed. The existing grade scale will be used.	
Lestrarlisti	Mathematical Methods for Physics and Engineering, K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press.		Literature	Mathematical Methods for Physics and Engineering K. F. Riley, M. P. Hobson S. J. Bence, 3rd edition 2006, Cambridge University Press.	
Samskipti	Petur Zachariassen; email: peturz@setur.fo		Contact	Petur Zachariassen; email: peturz@setur.fo	

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Heiti	Nýggjari alisfrøði		Title	Modern physics	
Skeið nr 3009.08	ECTS: 7.50	Fortreytir: 3007 Mekanikkur og hitalæra (kravt); 3008 Elektromagnetisma (tilmælt).	Course no. 3009.08	ECTS: 7.50	Prerequisites: 3007 Mechanics and thermodynamics (mandatory); 3008 Electromagnetism (recommended)
Endamál	At geva studentunum kunnleika til grundleggjandi partar av nýggjaru alisfrøðini.		Objective	To give an introduction to the fundamentals of modern physics.	
Evni	Spesiella relativitetsástøði, kvantisering av ljósi, løðing, impuls, impulsmomenti og orku. Geisling í holrúmi. Fotoelektrisk effekt. Røntgen geisling. Compton effekt. Atommyndlarnir hjá Rutherford og Bohr. Rydbergs formul. Røntgen spektur. Bragg reflektiún. Royndin hjá Millikan. Royndin hjá Franck-Hertz. De Broglie formlar. Aldupakkar. Elektronaldur. Elektroninterferensur. Óvissusambandið hjá Heisenberg. Komplementaritetsprinsippið. Schrödinger-líkingin í einari og í fleiri dimensiónum. Potentialbrunnar. Harmonisk sveiggj í kvantumekanikki. Operatorar. Eginvektorar. Væntað virði. Impulsmoment. Magnetisk moment. Spin. Symmetri. Skeiðbundna skipanin. Flyting millum orkustøður. Eksiteraðar støður. Absorbtiún. Stimulerað emmissiún. Zeemann effekt. Evnafrøðiligar bindingar. Mýl spektur. Klassisk ástøði um metalir. Kinetisk gass ástøði. Kvantustatistikkur. Band ástøði hjá føstum evnum. Grundstøður hjá atomkjarnum. Skal-myndilin. Mössbauer effekt. Geislavirkni. Kjarnureaktiúnir. Elementarbitlar.		Topics	Special relativity, quantization of light, charge, linear momentum, angular momentum and energy. Blackbody radiation. Photoelectric effect. X-rays. Compton effect. Atom models of Rutherford and Bohr. Rydberg formula. X-ray spectra. Bragg scattering. Millikan's oil-drop experiment. The Frank-Hertz experiment. De Broglie relations. Wave packets. Electron waves. Electron interference. Heisenberg uncertainty relations. The complementarity principle. Schrödinger equation in one and three dimensions. Potential barriers. Harmonic oscillator. The Hydrogen atom. Operators. Eigenfunctions. Expectation value. Angular moment. Magnetic moment. Spin. Symmetry. The periodic table. Transition between energy states. Excited states. Absorption. Stimulated emission. Zeemann effect. Chemical bindings. Molecular spectroscopy. Classical metal theory. Kinetic gas theory. Quantum statistics. Band theory of solids. Ground-state properties of nuclei. The shell model. Mössbauer effect. Radioactivity. Nuclear reactions. Elementary particles.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and problem solving.	
Døming	Fýra tíma skrivlig roynd. Øll vanlig hjálparamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination. Reference material permitted. The existing grade scale will be used.	
Lestrarlisti	P.A. Tipler, R.A. Llewellyn: Modern Physics, 4. útg., W. H. Freeman and Company, New York, 2003.		Literature	P.A. Tipler, R.A. Llewellyn: Modern Physics, 4th edition., W. H. Freeman and Company, New York, 2003.	
Samskipti	Hans Pauli Joensen; email: hanspj@setur.fo		Contact	Hans Pauli Joensen; email: hanspj@setur.fo	

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Heiti	Legugrýtisjarðfrøði		Title	Sedimentary Geology	
Skeið nr 3305.08	ECTS: 7.50	Fortreytir: 3303 Fysisk og feroysk jarðfrøði (kravt)	Course no. 3305.08	ECTS: 7.50	Prerequisites: 3303 Physical and Faroese Geology (mandatory)
Endamáli	At geva næmingum eina nágreiniliga innleiðing í hugtøk og tilgongdir innan legugrýtisjarðfrøði og lagskipanarfrøði og í hvussu hesi vera nýtt í leiting og verkfrøði.		Objective	To give the students a thorough introduction to sedimentary and stratigraphic concepts and processes as well as their application in exploration and engineering.	
Evni	Innførsla í legugrýtisfrøði og lagskipanarfrøði. Ymisk sløg av legugrýti, m.a. á landi, úr lívrunnum tilfari, evnafrøðiligar útskiljingar og goslegutilfar. Tilgongdir og lagdeilingar í sambandi við legugrýti. Umhvørvir og búning. Meginlond, jøklar, oyðimerkur, áir, vøtn, áarósar, strendur, grunnur og djúpur sjógvur, eldgosumhvørvi. Tilgongdir í sambandi við broytingar av legugrýti. Lagskipanarfrøði við atliti til tíðarskipan, lithoskipan, bioskipan og sekvenslagskipanarfrøði, á jarðarskorpuni og í undirgrundini. Legugrýtisker. Jørðin í jarðfrøðiligari tíð.		Topics	Introductory sedimentology and stratigraphy. Terrigenous, biogenic, chemical and volcanogenic sediments. Processes of transport and sedimentary structures. Environments and facies. Continents, glaciers, deserts, rivers, lakes, deltas, coastlines, shallow and deep seas, volcanic environments. Postdepositional processes. Chronostratigraphy, lithostratigraphy, biostratigraphy and sequence stratigraphy. Sedimentary basins. The Earth through geological time.	
Undirvísing	Fyrilestrar, venjingar og verkætlan		Instruction	Lectures, exercises and project.	
Døming	Venjingar og verkætlan (25%) og skrivlig próvtøka í fyra tímar (75%). Øll vanlig hjálparamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Evaluation of exercises and project (25%) and four-hour written examination (75%). All normal auxiliary devices and materials are permitted. The existing grade scale will be used.	
Lestrarlisti	Sedimentology & Stratigraphy: G. Nichols, 1st edition, Blackwell Science, 1998/9, ISBN: 0-632-03578-1. Upprit frá fyrilestrum.		Literature	Sedimentology & Stratigraphy: G. Nichols, 1st edition, Blackwell Science, 1998/9, ISBN: 0-632-03578-1. Lecture notes.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

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Heiti	Yvirflatu-aldur og sjóvarfall		Title	Surface waves and tides	
Skeið nr 3406.08	ECTS: 7.50	Fortreytir: 3002-3005 Støddfrøði 1-4; 3007 Alisfrøði 1; 3404 Havrørslufrøði; 3405 Smá- og mediumskala havfrøði	Course no. 3406.08	ECTS: 7.50	Prerequisites: 3002-3005 Mathematics 1-4; 3007 Physics 1; 3404 Dynamical Oceanography; 3405 Small- to medium-scale Oceanography
Endamál	At geva eina fatan av yvirflatu aldum og sjóvarfalli, og nakrar mátar at viðgera aldu og sjóvarfals dátur.		Objective	To give an understanding of the physics of surface waves and tides, and an introduction to analysis of wave and tidal data.	
Evni	Mátihættir, alduparametrar (hædd, perioda, kamb hædd, brattleiki), alduspektrum (varians tættleiki, 1-d og 2-d aldutal, títtleiki), ekstrem virði, linjær aldu ástøði, aldu orka, aldugerð og dissipation, shoaling, refraktión, diffraktión, reflektión og aldumodel.		Topics	Observation techniques, wave parameters (height, period, crest height, steepness), wave spectra (variance density, 1-D, and 2-D wavenumber, frequency), extreme values, linear wave theory, wave energy, wave generation and dissipation, shoaling, refraction, diffraction, reflection, wave models.	
Undirvísing	Fyrilestrar og uppgávurokning.		Instruction	Lectures and problem solving.	
Døming	Skrivlig próvtøka í fyra tímar. Øll vanlig hjalpiamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Four-hour written examination with all usual aids allowed. The existing grade scale will be used.	
Lestrarlisti	L.Holthuijsen, Waves in oceanic and coastal waters, Cambridge University Press, og egnar notur um sjóvarfall. Pensum: Chapter 2 (p. 10-23), Chapter 3 (p. 24-48), Chapter 4 (p. 56-85) Chapter 5 (p. 106-137), Chapter 6 (p. 145-196), Chapter 7 (p. 197-225)		Literature	L.Holthuijsen, Waves in oceanic and coastal waters, Cambridge University Press, and lecture notes on tidal currents. Pensum: Chapter 2 (p. 10-23), Chapter 3 (p. 24-48), Chapter 4 (p. 56-85) Chapter 5 (p. 106-137), Chapter 6 (p. 145-196), Chapter 7 (p. 197-225)	
Samskipti	Knud Simonsen; email: knuds@setur.fo		Contact	Knud Simonsen; email: knuds@setur.fo	

Heiti	Numerisk havmodellering		Title	Numerical ocean modelling	
Skeið nr 3407.08	ECTS: 7.50	Fortreytir: 3002-3005 Støddfrøði 1-4; 3007 Alisfrøði 1; 3404 Havrørslufrøði; 3405 Smá- og mediumskala havfrøði	Course no. 3407.08	ECTS: 7.50	Prerequisites: 3002-3005 Mathematics 1-4; 3007 Physics 1; 3404 Dynamical Oceanography; 3405 Small- to medium-scale Oceanography
Endamál	At geva eina innleiðing um numeriskar hættir, sum verða nýttir í numeriskum vesku simulatións modellum, og geva eitt yvirlit yvir verandi modelsløg.		Objective	To give an understanding of numerical methods used in numerical fluid simulation models and an overview of existing model types.	
Evni	Endalig differansu hátturin, rokni feilir, stabilitetur (von Neumann, vakstrar matrisur, CFL), numerisk diffusiún, advektiún og diffusiún, numerisk dispersiún, 2d-aldur, randtreytir, forskotin horisontal rútanet (t.e. Arakawa A, B, C og D), vertikal koordinatar (Z-, sigma-, isopyknal-, og hybrid koordinat skipanir) í 3D-modellum, endalig element og spektral modellir.		Topics	Finite-difference schemes, computational errors, stability (von Neumann, amplification matrix, CFL), numerical diffusion, advection and diffusion, numerical dispersion, 2D-waves, lateral boundary conditions, staggered horizontal grids (e.g. Arakawa A, B, C, and D) and vertical coordinates (Z-, sigma-, isopycnal-, and hybrid coordinate systems) in 3D models, finite-element and spectral models.	
Undirvísing	Fyrilestrar og uppgávurokning		Instruction	Lectures and problem solving	
Døming	Góðtiknar uppgávur og skrivlig próvtøka í fýra tímar. Vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Approved exercises and four-hour written examination with all usual aids allowed. The existing grade scale will be used.	
Lestrarlisti	R. N. Miller, Numerical modeling of ocean circulation, Cambridge University Press, ISBN-13 978-0-521-78182-4		Literature	R. N. Miller, Numerical modeling of ocean circulation, Cambridge University Press, ISBN-13 978-0-521-78182-4	
Samskipti	Knud Simonsen; email: knuds@setur.fo		Contact	Knud Simonsen; email: knuds@setur.fo	

Heiti	Kolvetnisjarðfrøði		Title	Petroleum Geoscience	
Skeið nr 3307.08	ECTS: 7.50	Fortreytir: 3305 Legugrýtisjarðfrøði (kravt); 3306 Leitingar- og umhvørvisjarðalisfrøði (tilmælt)	Course no. 3307.08	ECTS: 7.50	Prerequisites: 3305 Sedimentary Geology (mandatory); 3306 Exploration and Environmental Geophysics (recommended)
Endamáll	At geva næmingunum eina nágreiniliga innleiðslu í hugtøk og tilgongdir í kolvetnisjarðfrøði og -jarðalisfrøði, ið eru viðkomandi fyri kolvetnisjarðvísindafólk og oljuverkfrøðingar.		Objective	The purpose of the course is to give the students a thorough introduction to the concepts and processes of petroleum geology and geophysics relevant to petroleum geoscientists and engineers.	
Evni	Innleiðsla í kolvetnisjarðfrøði og -jarðalisfrøði; grundleggjandi hugtøk fyri kolvetni og goymslugrýti; amboð sum verða nýtt: jarðalisfrøðilig, jarðfrøðilig, brunnloggingar, evnafrøðilig, o.s.fr.; undangonguleitingar; troyting; meting; menning av leitingarmiðum; framleiðsla; tilburðasøgur, umframt onnur serstøk evni.		Topics	Introduction to petroleum geology and geophysics; basic concepts of petroleum and reservoirs; tools used: geophysical, geological, well-logging, chemical, etc.; frontier exploration; exploitation; appraisal; prospect development; production; case histories, and other special topics.	
Undirvísing	Fyrilestrar, venjingar og verkætlan.		Instruction	Lectures, exercises and project.	
Døming	Venjingar og verkætlan (25%) og skrivlig próvtøka í fýra tímar (75%). Øll vanlig hjálparamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Evaluation of exercises and project (25%) and four-hour written examination (75%). All normal auxiliary materials are permitted. The existing grade scale will be used. The existing grade scale will be used.	
Lestrarlisti	Petroleum Geoscience: J G Gluyas and R Swarbrick, 1st edition, Blackwell Publishing, 2004, ISBN-13: 978-0-632-03767-4. Upprit frá fyrilestrum.		Literature	Petroleum Geoscience: J G Gluyas and R Swarbrick, 1st edition, Blackwell Publishing, 2004, ISBN-13: 978-0-632-03767-4. Lecture notes.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

Heiti	Leitingar- og umhvørvisjarðalisfrøði		Title	Exploration and Environmental Geophysics	
Skeið nr 3306.08	ECTS: 7.50	Fortreytir: Innføring í jarðalisfrøði (kravt); 3010 Dátugreining (tilmælt)	Course no. 3306.08	ECTS: 7.50	Prerequisites: 3304 Introduction to Geophysics (mandatory); 3010 Data Analysis (recommended)
Endamál	At geva studentunum eina nágreiniliga innleiðslu í hugtøk og tilgondir viðvíkjandi jarðalisfrøði í sambandi við kolvetnis- og mineralleiting, umframt í umhvørvisjarðalisfrøði.		Objective	To give the students a thorough introduction to the concepts and methods involved in geophysical exploration for petroleum and minerals, as well as in near-surface or environmental geophysics.	
Evni	Dátu útvegan og viðgerð, aldu- og geislaástøði, seismiskar refraktións- og reflektiónskanningar, tyngd, magnetisma, mótstøða (resistivitetur), induserað polarisering, elektromagnetiskar kanningar, geislavirknar kanningar, umhvørvisjarðalisfrøðiligar kanningar, mátingar í boriholum v.m.		Topics	Data acquisition and processing, wave and ray theory, seismic refraction surveying, reflection surveying, gravity, magnetics, resistivity, induced polarization, electromagnetic methods, radiometric surveying, environmental geophysical surveys, borehole logging, etc.	
Undirvísing	Fyrilestrar, uppgávurokning og/ella verkætlanir.		Instruction	Lectures, problem solving and/or project work.	
Døming	Døming av innlatnum/ari uppgávum/verkætlan (25%) og skrivlig próvtøka í fýra tímar (75%). Vanlig hjálparamboð loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Evaluation of submitted exercises/project (25%) and four-hour written examination (75%). All normal auxiliary exam material permitted. The existing grade scale will be used.	
Lestrarlisti	An Introduction to Geophysical Exploration: P Kearey, M Brooks and I Hill, 3rd edition, Blackwell Publishing, 2002, ISBN13: 978-0-632-04929-5. Upprit frá fyrilestrum.		Literature	An Introduction to Geophysical Exploration: P Kearey, M Brooks and I Hill, 3rd edition, Blackwell Publishing, 2002, ISBN13: 978-0-632-04929-5. Lecture notes.	
Samskipti	Jim Brown; email: rjbrown@setur.fo		Contact	Jim Brown; email: rjbrown@setur.fo	

Heiti	Bachelor ritgerð – Jarð- og havfrøði		Title	BSc Thesis – Earth and Ocean Science	
Skeið nr 3090.08	ECTS: 7.50	Fortreytir: Fyrstu fimm lestrarhálvárini	Course no. 3090.08	ECTS: 7.50	Prerequisites: The first five semesters of the study
Endamál	At gera eitt sjálvstøðugt vísindaligt arbeiði, sum fevnir um innsavnan av tilfari, vísindaliga viðgerð og framløgu av úrslitum í eini skrivligari frágreiðing við hartil hoyrandi talvum og myndatilfari.		Objective	An independent scientific investigation, comprising collection and working up of material and presentation as a written report with tables and figures.	
Evni	Mál og samandráttur: Vegleiðarin, provdómarin og næmingurin finna í felag fram til, á hvørjum máli uppgávan skal skrivast. Fremst í uppgávuni skal vera ein samandráttur av úrslitunum í uppgávuni. Hesin samandrátturin skal skrivast á føroyskum og á enskum, og skrivaður soleiðis, at onnur enn fakfólk eisini kunna lesa hann. Samandrátturin skal í mesta lagi fylla hálva A-4 síðu.		Topics	Language and summary: Supervisor, external examiner and the student agree upon the language, in which the report be written. A summary of the results has to be included in the beginning of the report. The summary must be written in Faroese and in English, in such a way that it can be read by non-specialists. The summary should not exceed half an A-4 page.	
Undirvísing	Uppgávan verður gjørd í einum tíðarskeiði, ið er 16 vikur, við einum innlatingardegi, sum er avtalaður frammanundan.		Instruction	Work should be completed within 16 weeks and a final date should be set for delivery.	
Døming	Dømingin av frágreiðingini verður gjørd við støði í galdandi próvtalsstiga.		Evaluation	Evaluation of thesis according to the existing grade scale.	
Lestrarlisti	Listin er tengdur at evninum, ið verkætlan verður gjørd um.		Literature	The material will be according to the subject of the project.	

Heiti	Leitingarseismikkur		Title	Exploration Seismology	
Skeið nr 3308.08	ECTS: 7.50	Fortreytir: 3306 Leitingar- og umhvørvisjarðalisfrøði (kravt); 3005 Støddfrøði 4 (tilmælt)	Course no. 3308.08	ECTS: 7.50	Prerequisites: 3306 Exploration and Environmental Geophysics (mandatory); 3005 Mathematics 4 (recommended)
Endamál	At byggja víðari á áður hildin skeið og geva studentunum meiri vitan um hugtøk og hættir innan seismiska dátuprossessering og tulkning, soleiðis sum hetta verður brúkt innan leiting – serliga eftir kolvetni. At fáa eina fatan av undirgrundini og meta um gróteginleikar eru millum høvuðstættirnar í skeiðnum, men aðrir jarðalisfrøðiligir hættir verða eisini umrøddir, so sum tyngdarmátningar, boriholsmátningar og sekvens-lagskipanarfrøði.		Objective	To build on previous courses and give the students a deeper coverage of the concepts and methods of seismic data processing and interpretation as currently used in exploration, mainly for petroleum. Imaging of the subsurface and estimation of rock properties are among the primary goals and auxiliary geophysical methods will also be considered, such as potential-field methods, borehole logging and sequence stratigraphy.	
Evni	Seismisk upploysing, aliasing, knýting til brunnar, fellur, seismisk lagskipanarfrøði, modellering, inversión, 3D, AVO, lýsing av goymslugrýti, liðin-tíð seismologi, jarðhagfrøði, aðrir hættir. Prossessering av einum reflektións-seismiskum dátusetti við nýtslu av komersiellum forritum.		Topics	Seismic resolution, aliasing, tying to wells, pitfalls, seismic stratigraphy, modelling, inversion, 3-D, AVO, reservoir characterization, time-lapse seismology, geostatistics, auxiliary methods. Processing of a reflection-seismic dataset using a commercial software package.	
Undirvísing	Fyrilestrar, uppgávur, praktisk venjing í seismiskum prossesseringsforritum og ein einstaklings prossesseringsverkætlan.		Instruction	Lectures, exercises, hands-on practice with seismic processing software and an individual processing project.	
Døming	(1) Skrivlig próvtøka í fyra tímar við øllum vanligum hjálparamboðum, sum verður próvdømd bæði innanhýsis og uttanhýsis og telur 50%. (2) Ein einstaklings skrivlig uppgáva um seismisku prossesserings-verkætlanina verður próvdømd innanhýsis og telur 50%. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	(1) A 4-hour written examination with all normal auxiliary materials will be assessed both internally and externally and will count 50%. (2) An individual written report on the seismic processing project will be assessed internally and will count 50%. The existing grade scale will be used.	
Lestrarlisti	(1) Fundamentals of Geophysical Interpretation: L R Lines and R T Newrick, Society of Exploration Geophysicists, 2004, ISBN 1-56080-125-5. (2) Seismic Data Analysis: Processing, Inversion, and Interpretation of Seismic Data: O Yilmaz, 2nd edition, Society of Exploration Geophysicists, 2001, ISBN13: 978-1-560-80094-1. (3) Upprit frá fyrilestrum.		Literature	(1) Fundamentals of Geophysical Interpretation: L R Lines and R T Newrick, Society of Exploration Geophysicists, 2004, ISBN 1-56080-125-5. (2) Seismic Data Analysis: Processing, Inversion, and Interpretation of Seismic Data: O Yilmaz, 2nd edition, Society of Exploration Geophysicists, 2001, ISBN13: 978-1-560-80094-1. (3) Lecture notes.	
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◀ Valskeið / Optional courses

Heiti	Gosgrýtis- og umskapanarjarðfrøði		Title	Igneous & Metamorphic Geology	
Skeið nr 3309.08	ECTS: 7.50	Fortreytir: 3303 Fysisk og føroysk jarðfrøði (kravt)	Course no. 3309.08	ECTS: 7.50	Prerequisites: 3303 Physical and Faroese Geology (mandatory)
Endamál	At geva studentunum eina holla frálæru um groytistilgongdir, gosgrýti, umskapan og umskapað grótsløg, við denti løgðum á eldgos, tektonikk og lagskipanarfrøði í norðuratlantiska økinum.		Objective	To give the students a thorough introduction to magmatic processes, igneous rocks, metamorphism and metamorphic rocks, with a focus on the volcanism, tectonics and stratigraphy of the North Atlantic.	
Evni	Gosgrýti, termodynamikkur, silikatbræðingar og loftkvæmir lögir, javnvágir og evnafrøði við groytisskipanum, groytisuppperð og grótblæðingum innan í jørðini (djúpgrýti), innskot, útskot (daggrýti), basaltgrótblæðingar, kiselgrótblæðingar, skapan og sundurskiling av groyti (magma), gróttektoniskar samanknýtingar, norðuratlantiska gosgrýtisøkið, umskapan og umskapað grótsløg.		Topics	Magmatic rocks, thermodynamics, silicate melts and volatile fluids, equilibria and chemistry of magmatic systems, magma ascent and emplacement, intrusion, extrusion, basaltic lava, silicic lava, generation and differentiation of magma, petrotectonic associations, North Atlantic igneous province, metamorphism and metamorphic rocks.	
Undirvísing	Fyrilestrar, venjingar, útferðir í Føroyum, og verkætlan		Instruction	Lectures, exercises, field trips around the Faroes, and project.	
Døming	Venjingar, verkætlan og útferðafrágreiðing (35%) og skrivlig próvtøka í fyra tímar (65%). Øll vanlig hjálparamboð eru loyvd. Próvtøkuúrslit sambært galdandi próvtalsstiga.		Evaluation	Evaluation of exercises and project (25%) and a four-hour written examination (75%). All normal auxiliary devices and materials are permitted. The existing grade scale will be used.	
Lestrarlisti	Igneous and Metamorphic Petrology: M G Best, 2nd edition, Blackwell Science, 2003, ISBN-13: 978-1-405-10588-0 The North Atlantic Igneous Province: Stratigraphy, Tectonic, Volcanic and Magmatic Processes: edited by D W Jolley and B R Bell, Special Publication No. 197, Geological Society Publishing House; New edition, 2002, ISBN-13: 978-1-862-39108-6. Upprit frá fyrilestrum.		Literature	Igneous and Metamorphic Petrology: M G Best, 2nd edition, Blackwell Science, 2003, ISBN-13: 978-1-405-10588-0 The North Atlantic Igneous Province: Stratigraphy, Tectonic, Volcanic and Magmatic Processes: edited by D W Jolley and B R Bell, Special Publication No. 197, Geological Society Publishing House; New edition, 2002, ISBN-13: 978-1-862-39108-6. Lecture notes.	
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◀ Valskeið / Optional courses

Heiti	Grundleggjandi brunntøkni		Title	Basic Reservoir Engineering	
Skeið nr 3310.08	ECTS: 7.50	Fortreytir: 3403 Vesku mekanikkur (tilmælt); 3004 Støddfrøði 3 (kravt)	Course no. 3310.08	ECTS: 7.50	Prerequisites: 3403 Fluid Mechanics (recommended); 3004 Mathematics 3 (mandatory)
Endamál	At geva eina neyva vísindaliga bakgrund, sum einum nútímans oljuverkræðingi tørvar, og at geva grundleggjandi færleika til at meta um brunntøkniligar parametar og tilgongdir, sum hava týdning í samband við kolvetnisframleiðslu.		Objective	To provide the scientific background necessary for a modern petroleum engineer and give basic competence in the assessment and calculation of parameters and processes of importance with respect to the production of oil and gas.	
Evni	Skeiðið lýsir fysisk fyrbrigdi í einum goymslugrýti (reservoir) undir framleiðslumenning, og støddfrøðiligar myndlar, sum verða brúktir til simulering av tilgongdum í samband við framleiðslu av olju og gassi. Skeiðið viðger eginleikar og myndlar fyri poknut goymslugrýti, termodynamiskar eginleikar og fasujavnvágir í kolvetnisblandingum, Darcy'sa lóg, kapillar-trýst og vætuútbreiðslu í poknutum rúmi, vætuútbreiðslu í kolvetnisbrunnum, evnisjavnvágir, støðugar og óstøðugar streymar, streymfóringar og brunnskipanir; brunntestir, fleirfasu streymar í poknutum struktutum, innleiðing um vatninnspæning og øking av oljuframleiðslu, streymar í heterogenum brunnum, mynding av streymum við røntgen tomografi skannara, eyðkenni við donskum oljubrunnum.		Topics	The course describes physical phenomena occurring in a petroleum reservoir during its production development, and mathematical models that are applied for simulation of different processes in oil and gas recovery. It deals with properties and models of porous reservoir rocks; thermodynamic properties and phase equilibria of hydrocarbon mixtures; Darcy's law; capillary pressure and fluid distribution in porous space; fluid distribution on the reservoir scale; material balance; steady and unsteady flows; stream lines and systems of wells; well testing; multiphase flow in porous media; introduction to waterflooding and enhanced oil recovery; flow in heterogeneous reservoirs; visualization of flows with an x-ray tomography scanner; peculiarities of Danish petroleum reservoirs.	
Undirvísing	Fyrilestrar og uppgávur. Skeiðið er givið í samstarvi við DTU (Danmarks Tekniske Universitet), og er skipað sum fjarlestur við interaktivum samskipti um internetið, við spurningum, diskussiónum, framvísingum og venjingum. Á NVD (Náttúruvísindadeildini) gera studentarnir uppgávur, og ávíst krav er um heimaarbeiði. Ein skrivlig avloysingsuppgáva skal latast inn til metingar.		Instruction	The course will involve distance learning in cooperation with the Technical University of Denmark (DTU). It will be taught interactively, with questions and answers, discussions, demonstrations and exercises. At the Faculty of Science and Technology (NVD) some practical exercises will be carried out and some homework will be assigned. A written project report will be required.	
Døming	Dømingin er sett saman av tveimum pørtum: (1) ein avloysingsuppgáva sum verður dømd innanhýsis á DTU telur 2/3 (67%) og (2) uppgávur sum eru gjørdar og mettar innanhýsis á NVD telja 1/3 (33%). Eitt samlað próvtal eftir galdandi próvtalsstiga.		Evaluation	Evaluation consists of two parts: (1) a written project report assessed internally at DTU will count 2/3 (67%) and (2) exercises carried out and assessed internally at NVD will count 1/3 (33%). A combined grade will be given on the existing grade scale.	
Lestrarlisti	Alt skeiðstilfarið til fyrilestrarnar fæst á netsíðuni Campusnet hjá DTU. Annað tilfar verður tøkt sum elektroniskar bøkur á elektroniska bókasavninum hjá DTU.		Literature	All course literature will be made available on DTU's Campusnet prior to the corresponding lectures. Additional material will be available as electronic books in DTU's electronic library.	
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◀ Valskeið / Optional courses

Bachelor: Jarð-og havfrøði / Earth and Ocean Science