

Teaching and Examination Regulations

Appendix V - Minors

Faculty of Science

Academic year 2026-2027

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Appendix V: Minors

1. Minors of the Faculty of Science

Article 1.1 Bèta-minors

1. This is an overview of all minors that the Faculty of Science offers within the Bachelors, next to the VU-broad university minors. It is important that the student who wants to enroll in a minor apply in accordance with the rules. Additional entry requirements may apply and not every minor is open to students from every Bachelor programme.	Advice OLC; approval FGV (7.13 i)
1.1. A study programme can offer minors from other faculties, such as the education minor. These minors are not included in this overview as the Faculty of Science is not responsible for the content of these minors.	Advice OLC; approval FGV (7.13 i)
1.2. Students can enroll in minors according to the article 12.2 of the TER.	
2. In the event of a deviation from the standard curriculum, it is considered a free minor, and the title and description of the minor will not be assigned. The Examination Committee cannot make an exception to this.	

Article 1.2 Overview Bèta-minors

1.2.1. Minor Bioinformatics and Systems Biology

Owner: Bachelor Artificial Intelligence

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Compulsory courses</i>				
Basics of Bioinformatics and Systems Biology	XB_0142	6	300	
Calculus 1	X_400635	6	100	
Research Questions in Bioinformatics	XB_0148	6	300	
<i>Compulsory courses for AI/CS students</i>				
Biochemie	AB_1137	6	100	
<i>Compulsory courses for SCH, BIO, HLO students</i>				
Introduction to Python Programming for AI	XB_0145	6	100	
<i>Electives (choose 1 course)</i>				
Knowledge and Data	X_400083	6	200	
From Protein to Cell	AB_1052	6	300	
Metabolomics	AB_1291	6	300	
Information Retrieval	X_400435	6	300	
Mechanics and Thermodynamics in the Cell	X_422589	6	400	

1.2.2. Minor Biomedical Topics in Health Care

Owner: Bachelor Gezondheidswetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Neurologica land Psychiatric Disorders	AB_1023	6	300	
Hearth Failure and Therapy	AB_1211	6	300	
Genetics and Public Health	AB_1025	6	300	
Oncology and Public Health	AB_1027	6	300	
Toxicology and Development	AB_1026	6	300	

1.2.3. Minor Biomedische Beeldvorming

Owner: Bachelor Medische Natuurwetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Microscopie en spectroscopie voor MNW	X_420586	6	200	
Medische beeldvorming	X_436504	6	300	
Mechanics and thermodynamics in the cell	X_422589	6	400	
Introductie medische beeldbewerking	X_432630	6	300	
Project biomedische beeldvorming	X_420537	6	400	

1.2.4. Minor Biomolecular Sciences

Owner: Bachelor Biomedische Wetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Antimicrobial Compounds	AB_1122	6	300	
Experimental Biomolecular Sciences	AB_1323	6	300	
From Protein to Cell	AB_1052	6	300	
Metabolomics	AB_1291	6	300	
Molecular Microbiology	AB_470610	6	300	

1.2.5. Minor Business Analytics & Data Science

Owner: Bachelor Business Analytics

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Compulsory for all students</i>				
Mathmatics for Machine Learning	XB_0149	6	300	
<i>Students CS, choose 4 courses</i>				
Strat Man of Techn and Innov	E_MFEN_SMTI	6	300	
Knowledge and Data	X_400083	6	200	
Logistics Analysis	X_401084	6	300	
Math Economics I	E_EOR2_ME1	6	200	
Numerical Methods	X_401039	6	300	
Data Analytics and Privacy	R_DAP	6	300	
Information Retrieval	X_400435	6	300	

Concurrency & Multithreading	X_401031	6	300
Students BA, choose 4 courses			
Strat Man of Techn and Innov	E_MFEN_SMTI	6	300
Object-Oriented and Functional program	XB_0019	6	200
Knowledge and Data	X_400083	6	200
Logistics Analysis	X_401084	6	300
Math Economics I	E_EOR2_ME1	6	200
Data Analytics and Privacy	R_DAP	6	300
Data Structures and Algorithms I	XB_0151	6	100
Concurrency & Multithreading	X_401031	6	300
Students AI, choose 4 courses			
Strat Man of Techn and Innov	E_MFEN_SMTI	6	300
Data Structures and Alg for AI	XB_0043	6	200
Logistics Analysis	X_401084	6	300
Math Economics I	E_EOR2_ME1	6	200
Numerical Methods	X_401039	6	300
Data Analytics and Privacy	R_DAP	6	300
Information Retrieval	X_400435	6	300

1.2.6. Minor Communicatie over Gezondheid

Owner: Bachelor Gezondheidswetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Massacommunicatie en publieke opinie	AB_1028	6	200	
Gezondheid, media en publiek	AB_470188	6	300	
Gezondheidsrecht en ethiek	AB_1029	6	300	
Gezondheidsjournalistiek: analyse en v.	AB_1101	6	200	
Marketingtechnieken en Social Marketing	AB_1031	6	300	

1.2.7. Minor Deep Programming

Owner: Bachelor Computer Science

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Advanced Systems Programming	XB_0150	6	300	
Equational Programming	X_401011	6	300	
Secure programming	XB_40005	6	300	
Concurrency & Multithreading	X_401031	6	300	
Compiler Construction	XB_0003	6	300	

1.2.8. Minor Earth and Climate

Owner: Bachelor Aardwetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Climate Science	AB_1102	6	300	
Systeem Aarde	AB_450067	6	100	
Biogeosciences	AB_1094	6	300	
Water Management in the Netherlands	AB_450085	6	300	
Land Use Change	AB_1106	6	300	

1.2.9. Minor Earth Science

Owner: Bachelor Aardwetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Compulsory courses</i>				
Climate Science	AB_1102	6	300	
Biogeosciences	AB_1094	6	300	
<i>Electives period 1, choose 1 course</i>				
Geobotany	AB_1092	6	300	
Isotope Geochemistry	AB_1104	6	300	
<i>Electives period 2, choose 1 course</i>				
Sediment Dynamics	AB_1093	6	300	
Planetary Science	AB_1227	6	300	
Sociale geografie I	AB_450099	6	300	
<i>Electives period 3, choose 1 course</i>				
Earth and Life through Time	AB_1097	6	300	
Land Use Change	AB_1106	6	300	

1.2.10. Minor Evolutionary Biology and Ecology

Owner: Bachelor Biologie

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Environmental Toxicology	AB_1020	6	300	
Ecosystem Modelling	AB_1218	6	300	
Behavioural Biology	AB_1041	6	300	
Sustainable Landscape Chall. BSc	AB_1334	6	300	
Evolutionary Genetics	AB_1022	6	300	

1.2.11. Minor National Geo Information

Owner: Bachelor Aarde, Economie en Duurzaamheid

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Land Use Change	AB_1106	6	300	
Geo data	AB_1086	6	300	

Geographic Analysis and Visualisation	AB_1107	6	300	
GI Research Assignment	AB_1088	12	300	

1.2.12. Minor Neurosciences

Owner: Bachelor Biomedische Wetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
The Adaptive Brain	AB_1050	6	300	
Cell Biology of Neuron and Glia	AB_1299	6	300	
Molecular Principles of Brain Disorders	AB_1049	6	300	
Computational Neuroscience	AB_1298	6	300	
Neuronal Networks and Behavior	AB_1051	6	300	

1.2.13. Minor Pharmaceutical Sciences

Owner: Bachelor Farmaceutische Wetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Compulsory courses FAR students</i>				
Biophysic. meth. to receptor pharm.	XB_0129	6	300	
Radiopharmacochemistry	XB_43014	6	300	
Chemical biology	XBU_0040	6	300	
Induced Pluripotent Stem Cells	XB_0095	6	300	
Drug Discovery Simulation	XB_0094	6	300	
<i>Compulsory courses non-FAR students</i>				
Concepts of Drug Targets	XB_0158	6	300	
Concepts of Drug Discovery	XB_0157	6	300	
Drug Discovery Simulation	XB_0094	6	300	
<i>Constraint choice non-FAR students, period 1, choose 1 course</i>				
Biophysic. meth. to receptor pharm.	XB_0129	6	300	
Radiopharmacochemistry	XB_43014	6	300	
<i>Constraint choice non-FAR students, period 2, choose 1 course</i>				
Chemical biology	XBU_0040	6	300	
Induced Pluripotent Stem Cells	XB_0095	6	300	

1.2.14. Minor Physical Geography

Owner: Bachelor Aarde, Economie en Duurzaamheid

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
<i>Compulsory courses</i>				
Geobotany	AB_1092	6	300	
Climate Science	AB_1102	6	300	

Land Use Change	AB_1106	6	300	
<i>Constraint choice, period 2, choose 2 courses</i>				
Sediment Dynamics	AB_1093	6	300	
Biogeosciences	AB_1094	6	300	
Water Management in the Netherl	AB_450085	6	300	
Sociale geografie I	AB_450099	6	300	

1.2.15. Minor SBI voor Science studenten

Owner: Bachelor Science, Business & Innovation

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Strat Man of Techn and Innov	E_MFEN_SMTI	6	300	
Gov. and Reg. of Emerging Technologies	R_GRET	6	200	
Enterprising Behavior	E_MFEN_ENTB	6	300	
Theories of technology venture creation	X_420569	6	400	
Technology Entrepreneurship in Prac	XB_0066	6	300	

1.2.16. Minor Situated AI

Owner: Bachelor Artificial Intelligence

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Introduction to Reinforcement Learn	XB_0118	6	300	
Robotics	XB_0120	6	300	
Formal Logic in AI	XB_0116	6	300	
Conversational AI	XB_0119	6	300	
Project Situated AI	XB_0121	6	300	

1.2.17. Minor Spatial Economics

Owner: Bachelor Aarde, Economie en Duurzaamheid

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Public Economics	AM_1100	6	300	
Real Estate and Urban Planning	E_MFRE_REUP	6	300	
Sociale geografie I	AB_450099	6	300	
Urban Economics and Real Estate	E_MFRE_UERE	6	300	
Land Use Change	AB_1106	6	300	

1.2.18. Minor Topics in Biomedical Sciences

Owner: Bachelor Biomedische Wetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Antimicrobial Compounds	AB_1122	6	300	
Transition to Animal Free liCBal	AB_1346	6	300	

Molecular Principles of Brain Disorders	AB_1049	6	300	
Toxicology	AB_1277	6	300	
Allergy and Autoimmunity	AB_1322	6	300	

Article 1.3 University minors

1. The following minors are offered as university minors after approval of the Educational Quality Steering Committee (STOK in Dutch). Be aware! There can still be entry requirements for these minors or exclusion for students of specific study programmes.	Advice OLC; approval FGV (7.13 i)
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Article 1.4 Overview university minors

1.4.1. Minor Basics of Artificial Intelligence

Owner: Bachelor Artificial Intelligence

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Basic principles of AI	XB_0177	6	100	
Basics of Machine Learning	XB_0180	6	200	
Responsible AI	XB_0178	6	300	
Frontiers of AI	XB_0179	6	200	
Applied AI	XB_0181	6	300	

1.4.2. Minor Brain and Mind

Owner: Bachelor Gezondheidswetenschappen

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Cognitive Neuroscience	AB_1056	6	300	
Genetics of Human Behavior	AB_1328	6	300	
Brain in Trouble	AB_1038	6	300	
The Developing Brain	AB_1059	6	300	
Mind and Machine	AB_1060	6	300	

1.4.3. Minor Data Science

Owner: Bachelor Business Analytics

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Statistical Methods for Data Anal.	XB_0172	6	200	
Introduction to Data Science	XB_0175	6	100	
Predictive Analytics and Mach. L.	XB_0171	6	300	
Optimization and AI	XB_0173	6	300	
Capstone Project in Data Science	XB_0170	6	300	

1.4.4. Minor Global Health

Owner: Bachelor Gezondheid en Leven

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Future Challenges in Global Health	AB_1042	6	300	
Key Strategies in Disability and Neuropa	AB_1045	6	300	
Drivers of Change in Global Health	AB_1108	6	300	
Double Burden of Disease	AB_1109	6	300	
Community-based Health Interventions	AB_1110	6	300	

1.4.5. Minor Sustainability: Global Challenges, Interdisciplinary Solutions

Owner: Bachelor Aarde, Economie en Duurzaamheid

Name of unit of education	course code	nr of EC	level	Advice OLC; (7.13 a)
Sustainability and Env. Change	AB_1230	6	300	
Grand Chall for Sustainability	E_MFS_GCS	6	300	
Governance of Global Sustainability	AB_1229	6	300	
Global Development and Prosperity	AB_1275	6	300	
Designing Solutions for Glob. Sust	AB_1231	6	300	