

Programme jointly offered by Ghent University, TU Bergakademie Freiberg, Uppsala University

International Master of Science in Sustainable and Innovative Natural Resource Management

Language of instruction: English

Programme version 9

1 General Courses 65 credits

1.1 Ghent University 22 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002766 Introduction to the Circular Economy, Economics and Management of Natural Resources <i>Stijn Speelman -- Department of Agricultural Economics</i>	4		1	A:1	120
2	I003060 Sustainable Systems Engineering <i>Sophie Huysveld -- Department of Green Chemistry and Technology</i>	5		1	A:1	150
3	I002919 Sustainable Development and Multicriteria Decision-making <i>Gijs Du Laing -- Department of Green Chemistry and Technology</i>	3		1	A:1	75
4	E065460 Rational Use of Materials <i>Tom Depover -- Department of Materials, Textiles and Chemical Engineering</i>	5		1	A:1	150
5	I002767 Resource Recovery and Recycling Technologies <i>Tom Hennebel -- Department of Biotechnology</i>	5		1	A:J	150

1.2 TU Bergakademie Freiberg 18 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002920 Financial and Sustainability Reporting, Financial Planning and Business Valuation <i>TU Bergakademie Freiberg, Karina Sopp</i>	5		2	A:J	150
2	I003018 Chemical Principles and Sustainable Technologies along the Raw Materials Value Chain <i>TU Bergakademie Freiberg, Gero Frisch</i>	13		1	A:J	390

1.3 Uppsala University 25 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002921 Mineral Exploration <i>Uppsala University, Daniel Buczko</i>	10		1	A:2	300
2	I002770 Innovation Management and Entrepreneurship <i>Uppsala University, Jens Eklinder Frick</i>	10		1	A:2	300

1.3.1 Elective courses 5 credits

Subscribe to 5 credit units from the following list. Subject to approval by the faculty.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002194 Environmental Assessment <i>Uppsala University, Christian Zdanowicz</i>	5		1	A:2	150
2	I002195 Physical–Chemical Properties of Rocks, Minerals and Materials <i>Uppsala University, Bjarne Almqvist</i>	5		1	A:2	150
3	I002922 Geological Field Project <i>Uppsala University, Jaroslaw Majka</i>	5		1	A:2	150
4	I003019 Technological Developments for Economic Valuation and Sustainability of Mineral Resources <i>Uppsala University, Glen Nwaila</i>	5		1	A:2	150

Subscribe to 1 major from the following list. Subject to approval by the faculty.

2.1 Georesource Exploration – Uppsala University

15 credits

Subscribe to 15 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002197 Critical Metals and Minerals <i>Uppsala University, Erik Jonsson</i>	5		2	A:1	150
2	I002409 Challenges of Deep and High Stress Mining <i>Uppsala University, Raymond Durrheim</i>	5		2	A:1	150
3	I002883 Applied 3D Geological Modeling and Mapping <i>Uppsala University, Steffi Burchardt</i>	5		2	A:1	150
4	I002923 Exploration Geochemistry <i>Uppsala University, Abigail Barker</i>	5		2	A:1	150
5	I003020 Applied Geophysics and Rock Physics <i>Uppsala University, Alireza Malehmir</i>	15		2	A:1	450

2.2 Circular Societies and Sustainable Materials - Ghent University

15 credits

Subscribe to 15 credit units from the following list, with 4 credit units with reference a.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002882 Sustainable Management of Resources in the Circular Economy <i>Gijs Du Laing -- Department of Green Chemistry and Technology</i>	4	a	2	A:J	120
2	E900069 Composites <i>Wim Van Paepegem -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:1	180
3	I002607 Resource Recovery Technology <i>Ramon Ganigué -- Department of Biotechnology</i>	6		2	A:2	180
4	E065480 Life Cycle Assessment of Materials and Structures <i>Nele De Belie -- Department of Structural Engineering and Building Materials</i>	3		2	A:2	90
5	I001571 Environmental Legislation <i>Hendrik Schoukens -- Department of European, Public and International Law</i>	3		2	A:1	75
6	B001439 Urban Mobility and Logistics <i>Giovanni Circella -- Department of Geography</i>	3		2	A:1	90
7	B001514 Transport Economics and Policy <i>Frank Witlox -- Department of Geography</i>	3		2	A:1	90
8	E065472 Metal Extraction and Recycling <i>Inge Bellemans -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:2	180
9	I003016 Metals and Metalloids in Environment and Technology <i>Filip Tack -- Department of Green Chemistry and Technology</i>	5		2	A:1	150
10	I002406 Basics of Process Engineering <i>Frederik Ronsse -- Department of Green Chemistry and Technology</i>	3		2	A:2	75
11	E071131 Sustainable Chemical Production Processes <i>Kevin Van Geem -- Department of Materials, Textiles and Chemical Engineering</i>	6		2	A:1	180
12	E035421 Sustainable Energy <i>Jan Mertens -- Department of Electromechanical, Systems and Metal Engineering</i>	3		2	A:1	90
13	I002591 Environmental Technology: Waste <i>Stef Ghysels -- Department of Green Chemistry and Technology</i>	3		2	A:2	90
14	I002771 Resource Recovery from Wastewater <i>Gijs Du Laing -- Department of Green Chemistry and Technology</i>	3		2	A:J	90
15	I002776 Processes in Practice <i>Eveline Volcke -- Department of Green Chemistry and Technology</i>	3		2	A:1	90
16	I002752 Advanced Wastewater Treatment Process Design <i>Eveline Volcke -- Department of Green Chemistry and Technology</i>	3		2	A:1	90

2.3 Sustainable Processes – TU Bergakademie Freiberg

15 credits

Subscribe to 15 credit units from the following list.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002183 Sensors and Actuators <i>TU Bergakademie Freiberg, Yvonne Joseph</i>	4		2	A:J	120

2	I002849	Selective Separation of Strategic Elements <i>TU Bergakademie Freiberg, Roland Haseneder</i>	5	2	A:J	150
3	I002848	Resources Chemical Technology <i>TU Bergakademie Freiberg, Martin Bertau</i>	5	2	A:J	150
4	I002847	Microbiology for Resource Scientists: Lab Course <i>TU Bergakademie Freiberg, Sabrina Hedrich</i>	4	2	A:J	120
5	I002850	Simulation of Sustainable Metallurgical Process <i>TU Bergakademie Freiberg, Markus Reuter</i>	6	2	A:J	180
6	I002884	Analysis of High Temperature Processes in Extractive Metallurgy <i>TU Bergakademie Freiberg, Alexandros Charitos</i>	5	2	A:J	150
7	I002924	Biotechnology in Metal Extraction and Recycling <i>TU Bergakademie Freiberg, Sabrina Hedrich</i>	4	2	A:J	120
8	I002925	Classifying Machines, Crushers, Mills <i>TU Bergakademie Freiberg, Holger Lieberwirth</i>	5	2	A:J	150

2.4 Sustainable Entrepreneurship - Uppsala University

15 credits

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I003037 Organising Knowledge-Intensive Work <i>Uppsala University, Michal Zawadzki</i>	5		2	A:1	150
2	I003038 Technology-Based Entrepreneurship <i>Uppsala University, Serdar Temiz</i>	5		2	A:1	150
3	I003039 Technology-Based Business Models for Circularity <i>Uppsala University, Serdar Temiz</i>	5		2	A:1	150

3 Work Placement

10 credits

Institution where the internship is to be taken depends on the chosen major:
 - major at Uppsala University = internship coordinated by TU Bergakademie Freiberg
 - major at Ghent University = internship coordinated by TU Bergakademie Freiberg
 - major at TU Bergakademie Freiberg = internship coordinated by Ghent University

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002410 Training in Industry <i>TU Bergakademie Freiberg, Gero Frisch</i>	10		2	A:J	300

4 Master's Dissertation

30 credits

The Master's Dissertation can be taken at either Uppsala University (Sweden) ; TU Bergakademie Freiberg (Germany); Ghent University (Belgium) : to be taken at the institution that offers the chosen major.

Nr	Course	CRDT	Ref	MT1	Session	Study
1	I002199 Master's Dissertation <i>Gijs Du Laing -- Department of Green Chemistry and Technology</i>	30		2	A:J	900

Teaching

When a course is not taught (solely) in the programme's language of instruction, the effectively used languages are indicated in square brackets following the course name, using the following ISO codes:

bg: Bulgarian	de: German	es: Spanish	ja: Japanese	pl: Polish	sh: Kroatian/Serbian	zh: Chinese
cs: Czech	el: Greek	fr: French	nl: Dutch	pt: Portuguese	sl: Slovene	
da: Danish	en: English	it: Italian	no: Norwegian	ru: Russian	sv: Swedish	

Semester

Semesters are indicated by their number (1 or 2); semester 3 represents the summer period and J indicates a course spanning semesters 1 and 2. When a capital letter precedes a semester number, the course has multiple offerings. The letter indicates the offering concerned.

When a semester is shown in brackets, the course is not offered this year in the specific offering.

The offering frequency and first year of offering are indicated by the following codes:

a: bi-annually	c: annually, from 2026-2027	f: annually, from 2027-2028	i: annually, from 2028-2029
b: tri-annually	d: bi-annually, from 2026-2027	g: bi-annually, from 2027-2028	j: bi-annually, from 2028-2029
	e: tri-annually, from 2026-2027	h: tri-annually, from 2027-2028	k: tri-annually, from 2028-2029