Programme-specific Section of the Curriculum for the MSc Programme in Geography and Geoinformatics at the Faculty of Science, University of Copenhagen 2017

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1 Title, affiliation and language
A shared section that applies to all BSc and MSc Programmes at the Faculty of Science is linked to this programme-specific curriculum.

1.1 Title
The MSc Programme in Geography and Geoinformatics with a specialisation in Geoinformatics leads to a Master of Science (MSc) in Geography and Geoinformatics with a specialisation in Geoinformatics with the Danish title: Cand.scient.(candidatus/candidata scientiarum) i geografi og geoinformatik med en specialisering i geoinformatik.

The MSc Programme in Geography and Geoinformatics with a specialisation in Physical Geography leads to a Master of Science (MSc) in Geography and Geoinformatics with a specialisation in Physical Geography with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i geografi og geoinformatik med en specialisering i naturgeografi.

The MSc Programme in Geography and Geoinformatics with a specialisation in Human Geography leads to a Master of Science (MSc) in Geography and Geoinformatics with a specialisation in Human Geography with the Danish title: Cand.scient. (candidatus/candidata scientiarum) i geografi og geoinformatik med en specialisering i kulturgeografi.

1.2 Affiliation
The programme is affiliated with the Study Board of Geosciences and Management, and the students can both elect, and be elected, to this study board.

1.3 Corps of external examiners
The following corps of external examiners is used for the central parts of the MSc Programme:
   - Corps of External Examiners for Geography (geografi).

1.4 Language
The language of this MSc Programme is English.

2 Academic profile
2.1 Purpose
Graduates in Geography and Geoinformatics are able to apply geographical methods of working in a critical manner and communicate academic problems and model solutions to geographers and to other partners and users. The breadth and interdisciplinary nature of the programme enables them to engage in and manage complex tasks and projects. They are also able to understand and work with people from different scientific backgrounds, and act as bridge-builders between, e.g. science and social studies.

2.2 General programme profile
The study programme is structured around three specialisation profiles namely Geoinformatics, Physical Geography and Human Geography. Each specialisation includes a number of mandatory and specialised restricted elective courses. The MSc programme includes a thesis, which is an independent experimental, field-based or theoretical study within a clearly defined area of the geographical fields of study.

Geography and Geoinformatics is the key subject area of the programme.

2.3 General structure of the programme
The MSc Programme is set at 120 ECTS.
The MSc Programme in Geography and Geoinformatics consists of the following elements:

- Specialisation 120 ECTS.

The student must choose one of the following specialisations:

- Geoinformatics
- Physical Geography
- Human Geography

2.4 Career opportunities
The MSc Programme in Geography and Geoinformatics qualifies students to become professionals within business functions and/or areas such as:

- A PhD programme
- Holders of an MSc degree in Geography & Geoinformatics are able to apply geographical methodologies in a critical manner and communicate geographical subject matter and solution models both to other geographers and other collaboration partners and users.
- With their broadly based and often interdisciplinary education, they are capable of being involved in and managing complex tasks and projects.
- Also, they are able to understand and work with persons from other scientific backgrounds and bridge the gaps between, for example, the natural and social sciences.

3 Description of competence profiles
Students following the MSc Programme acquire the knowledge, skills and competences listed below. Students will also acquire other qualifications through elective subject elements and other study activities.

3.1 Geoinformatics
On completion of the programme, an MSc in Geography and Geoinformatics with a specialisation in Geoinformatics has acquired the following:

Knowledge about:
- Theory and concepts within GIS, GIscience, and remote sensing (Earth observation/EO).
- Advanced use of geographical information systems (GIS) for applications within Geography, including spatial planning.
- Acquiring, processing and applications of contemporary remote sensing for environmental monitoring and modelling.
- Advanced methods for spatial analysis and modelling.
- Programing, Customization and Automation in GIS.
- Different GIS/EO platforms.
- Relevant GIS data models.
- State-of-the-art environmental monitoring algorithms within optical and thermal infrared remote sensing.
- Processing of data from registers and digital maps.
- Advanced methods of mapping and visualizations.

Skills in/to:
- Perform advanced GIS/EO-based spatial analysis, based on relevant data sets and appropriate methods.
- Manage relevant GIS/EO software on an advanced level including programming and automation.
- Conduct effective visual communication of spatial data and the results of spatial analysis.
Select appropriate EO data and methodology for areas covering the interaction between environmental resources, the dynamics and management of global and local land use, and global climate change.
Assess data quality, e.g. in terms of uncertainty, in order to understand and describe the limitations of current EO and GIS technology.
Integrate EO data with other data in a GIS environment.
Communicate results of research and projects orally and in writing.

Competences in/to:
- Work at a high scientific and application-oriented level with state-of-the-art digital spatial data, analytical tools and GIS/EO software.
- Theorise and understand how geoinformatics including GIS and EO may be integrated in different scientific fields including environmental monitoring and modelling on both local and global scales.

3.2 Physical Geography

On completion of the programme, an MSc in Geography and Geoinformatics with a specialisation in Physical Geography has acquired the following:

Knowledge about:
- The physical processes of ecosystems with relation to exchange of energy, water and carbon.
- Advanced theoretical background and up-to-date research on selected topics in Arctic, Danish and tropical ecosystems with focus on soils, vegetation and changing land use.
- The interplay between atmospheric circulation and radiation/energy balance and correlation with the global climate and hydrology.
- The application of global climate models to spatio-temporal variations in the global climate.
- Major fluvial and estuarine landforms and their genesis, and their potential use as archives of environmental change.
- Methods and equipment used in the study of fluvial, estuarine and marine environments
- the potential effect of sea-level and climate change on landscape processes and geomorphology

Skills in/to:
- Identify and apply appropriate methods for assessing chemical and physical processes in soil related to climate change, changing land use and pollution
- Identify and describe key factors that control a range of biogeochemical processes and net effects in terms of the environmental impact of pollutants and greenhouse gases
- Assess the relationship between terrestrial ecosystems and global climate systems contextualized via historical and present-day perspectives and across a range of temporal and spatial scales – from seconds to millennia and from stomata to continents
- Assess how models at different scales and databases can be used to enhance our understanding of present and historical climate and predict future development in climatic trends.
- Design and carry out studies and research projects within the fields of geomorphology, sediment transport and landscape processes
- Review a scientific subject on the basis of original scientific literature.
- Communicate results of research and projects orally and in writing.
Competences in/to:

- Explain the role of soils in an environmental context, with a special emphasis on climate change, changing land use, carbon cycles and pollution.
- Explain the relationship between climate, ecosystems and land-use in different climate zones.
- Sediment transport in fluvial, estuarine and marine environments
- Field methods used in studies of sediment transport in the fluvial, estuarine and marine environment
- The response of fluvial and estuarine landscapes to changes in sea level and climate.

3.3 Human Geography

On completion of the programme, an MSc in Geography and Geoinformatics with a specialisation in Human Geography has acquired the following:

Knowledge about:

- Theoretical approaches to human geography and key conceptualisations of space and place including social, economic and development geography as well as human-environment interactions and spatial planning. There is a possibility to focus on the Global North or the Global South.
- Globalisation processes and their geographical implications from local to global scales including the dynamics of global value chains, transformation of cities, regions and landscapes, migration, urbanisation, rural-urban connections and land use change.
- The relationship between environmental change and human activity including resilience, vulnerability and adaptive processes.
- The social, political and economic processes and drivers of the location, distribution and growth of human activity.
- The role of uneven geographical development including its implications for urban and regional development as well as rural and urban livelihoods.
- Spatial planning including governance and policy networks.

Skills in/to:

- Design and perform studies and research projects within the field of human geography
- Present theoretical arguments, conduct theoretical and empirical assessments and use the appropriate theories, methods and data to perform scientific analyses.
- Select appropriate quantitative and qualitative methodologies for problem-based research.
- Plan and perform field work and projects.
- Compile and analyse complex data from a variety of sources.
- Communicate results of research and projects orally and in writing.

Competences in/to:

- Work at a high scientific and application-oriented level with a broad range of theoretical and methodological approaches to human geography
- Work with interdisciplinary dimensions of human geographical processes and their impacts and spatial aspects at different scales.
- Work, individually and in teams, with complex problems by organizing them into manageable projects.
- Work in and understand the implications of cross-cultural contexts.
4 Admission requirements
With a Bachelor’s degree in Geography and Geoinformatics (geografi og geoinformatik) from the University of Copenhagen the student is granted reserved access and guaranteed a place on the MSc Programme in Geography and Geoinformatics if the student applies before the application deadline during the first application period after the completion of the Bachelor’s degree.

4.1 Applicants with a Bachelor’s degree in Geography and Geoinformatics or Geography
Applicants with a Bachelor’s degree in Geography and Geoinformatics from the University of Copenhagen or a Bachelor’s degree in Geography from Danish or Nordic universities are directly academically qualified for admission to the MSc Programme in Geography and Geoinformatics.

4.2 Applicants with a related Bachelor’s degree
Applicants with a Bachelor’s degree in the following are directly academically qualified for admission to the MSc programme in Geography and Geoinformatics:
- Surveying and Mapping or Urban, Energy and Environmental Planning from Aalborg University.
- International Development Studies (with a social science or natural-science basic programme) from Roskilde University.
- Natural resources from the University of Copenhagen.
- Environmental Engineering from the Technical University of Denmark.

4.3 Applicants with a Bachelor’s degree within the field of science
Applicants with a Bachelor’s degree within the field of science from the Faculty of SCIENCE at the University of Copenhagen may be admitted if their programme includes the following:
- Courses from the BSc Programme in Geography and Geoinformatics, 60 ECTS.

4.4 Other applicants
The Faculty may also admit applicants who, after an individual academic assessment, are deemed to possess educational qualifications equivalent to those required in 4.1-3.

4.5 Language requirements
4.5.1 Applicants from Nordic universities
Applicants with a Bachelor’s degree from Nordic universities must as a minimum document English language qualifications comparable to a Danish upper secondary school English B level.

4.5.2 Non-Nordic applicants
Applicants with a non-Nordic Bachelor’s degree must be able to document English proficiency corresponding to an IELTS test score of minimum 6.5 or a ToEFL test score of minimum 83 (Internet-based).

5 Prioritisation of applicants
If the number of qualified applicants to the programme exceeds the number of places available, applicants will be prioritised as follows:

1) Applicants with a Bachelor’s degree in Geography and Geoinformatics from the University of Copenhagen seeking admission by way of direct extension of their completed BSc programme. Admitted on condition that there be legally entitled Bachelors for the programme.
2) Applicants with a Bachelor’s degree in Geography and Geoinformatics from the University of Copenhagen or a Bachelor’s degree in Geography from Danish or Nordic universities.
3) Applicants with a related Bachelor’s degree.
4) Applicants with a Bachelor’s degree within the field of science.
5) Other applicants.

If the number of qualified applicants within a category exceeds the number of places available, applicants are then prioritised according to the following criteria (listed below in prioritised order):
- Highest number of ECTS gained in subject elements in geography and geoinformatics.

6 Structure of the programme
The compulsory subject elements, restricted elective subject elements and the thesis constitute the central parts of the programme (Section 21 of the Ministerial order on Bachelor and Master’s Programmes (Candidatus) at Universities).

6.1 Geoinformatics
The specialisation is set at 120 ECTS and consists of the following:
- Compulsory subject elements, 15 ECTS.
- Restricted elective subject elements
  - 45 ECTS (thesis, 45 ECTS credit).
  - 30 ECTS (thesis, 60 ECTS credit).
- Elective subject elements, 15 ECTS.
- Thesis, 45 or 60 ECTS.

6.1.1 Compulsory subject elements
All of the following subject elements are to be covered (15 ECTS):
- NIGK17010U Remote Sensing of the Bio-Geosphere Block 1 7.5 ECTS
- NIGK15001U Advanced Geoinformatics Block 2 7.5 ECTS

6.1.2 Restricted elective subject elements
1) At least 15 ECTS are to be covered as subject elements from the following list:
- NGEK10002U Applied GIS and Geoinformatics for Urban Spatial Analysis Block 1 7.5 ECTS
- NIGK17011U Spatial and Temporal Pattern Analysis Block 2 7.5 ECTS
- NIGK17012U Remote Sensing in Land Science Studies Block 3 7.5 ECTS
- NIGK15021U Programming, Customization and Automation in GIS Block 4 7.5 ECTS

2) Up to 30 ECTS are to be covered as subject elements from the following list (thesis, 45 ECTS credit)
Up to 15 ECTS are to be covered as subject elements from the following list (thesis, 60 ECTS credit)
- NIGK17008U Environment, Society and Development Block 1 7.5 ECTS
- NIGK14009U Land Use Transitions in the Global South Block 1 7.5 ECTS
- NGEK10015U The Dynamics of City Regions: Social and Economic Change Block 1 7.5 ECTS
- NIGK17013U Ecosystems, Climate and Climate Change Block 1 7.5 ECTS
- NIGK17014U Coastal Geoscience Block 1 7.5 ECTS
- NIGK14055U Interdisciplinary Project Course Block 1 7.5 ECTS
- NIGK17015U Transformation of Cities and Landscapes: Globalisation Block 2 7.5 ECTS
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
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<tr>
<td>NIGK17017U</td>
<td>Fluvial and Estuarine Geoscience</td>
<td>Block 2</td>
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<td>NGEK11006U</td>
<td>International Migration - Flows, Networks and Diasporas</td>
<td>Block 2</td>
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<tr>
<td>NGEK10018U</td>
<td>Countryside Planning: Policies, Processes and Regulation</td>
<td>Block 2</td>
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<tr>
<td>NIGK17016U</td>
<td>Environmental Soil Science</td>
<td>Block 2</td>
<td>7.5</td>
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<tr>
<td>NIGK15006U</td>
<td>Field and Methods Course in Geography and Geoinformatics</td>
<td>Block 1+2</td>
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<td>NGEK10024U</td>
<td>Globalisation and Dynamics in Global Value Chains</td>
<td>Block 3</td>
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<tr>
<td>NGEA09056U</td>
<td>Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment</td>
<td>Block 3</td>
<td>7.5</td>
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<tr>
<td>NIGK15027U</td>
<td>Surface Hydrology</td>
<td>Block 3</td>
<td>7.5</td>
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<tr>
<td>NGEK10027U</td>
<td>Project Management and Planning</td>
<td>Block 3</td>
<td>7.5</td>
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<td>LFKK10246U</td>
<td>Thematic Course: Interdisciplinary Land Use and Natural Resource Management</td>
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<tr>
<td>NIGK15002U</td>
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<td>Block 4</td>
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<tr>
<td>NIGK17009U</td>
<td>Livelihoods and Rural-Urban Connections in the Global South</td>
<td>Block 4</td>
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<tr>
<td>NIGK15005U</td>
<td>Ecological Modelling</td>
<td>Block 4</td>
<td>7.5</td>
</tr>
<tr>
<td>NIGK17007U</td>
<td>Advanced Soil Science and Isotope Geochemistry</td>
<td>Block 4</td>
<td>7.5</td>
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<tr>
<td>NIGK13012U</td>
<td>Human Adaptation to Climate Change and Variability</td>
<td>Block 4</td>
<td>7.5</td>
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<tr>
<td>LNAK10010U</td>
<td>Environmental Impact Assessment</td>
<td>Block 4</td>
<td>7.5</td>
</tr>
<tr>
<td>NIGK14008U</td>
<td>VVM i praksis</td>
<td>Block 4</td>
<td>7.5</td>
</tr>
<tr>
<td>NIGK15006U</td>
<td>Field and Methods Course in Geography and Geoinformatics</td>
<td>Block 3+4</td>
<td>15</td>
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<tr>
<td>NIGK15022U</td>
<td>Project Course in Geography and Geoinformatics</td>
<td>Block 1-5</td>
<td>7.5</td>
</tr>
<tr>
<td>NFKK14006U</td>
<td>Project in Practice</td>
<td>Block 1-5</td>
<td>15</td>
</tr>
</tbody>
</table>

### 6.1.3 Elective subject elements
15 ECTS are to be covered as elective subject elements.

All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 15 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme with up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may not exceed 15 ECTS in total on the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.

### 6.1.4 Thesis
The MSc Programme in Geography and Geoinformatics with a specialisation in Geoinformatics includes a thesis corresponding to 45 or 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.
6.1.5 Academic mobility
The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Geoinformatics (thesis, 45 ECTS credit) is placed in block 3+4 of the first year.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Geoinformatics (thesis, 60 ECTS credit) is placed in block 3+4 of the first year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.2 Physical Geography
The specialisation is set at 120 ECTS and consists of the following:

- Compulsory subject elements, 15 ECTS.
- Restricted elective subject elements
  - 45 ECTS (thesis, 45 ECTS).
  - 30 ECTS (thesis, 60 ECTS).
- Elective subject elements, 15 ECTS.
- Thesis, 45 or 60 ECTS.

6.2.1 Compulsory subject elements
All of the following subject elements are to be covered (15 ECTS):

- NIGK17013U Ecosystems, Climate and Climate Change Block 1 7.5 ECTS
- NIGK17017U Fluvial and Estuarine Geoscience Block 2 7.5 ECTS

6.2.2 Restricted elective subject elements
1) At least 15 ECTS are to be covered as subject elements from the following list:

- NIGK17014U Coastal Geoscience Block 1 7.5 ECTS
- NIGK17016U Environmental Soil Science Block 2 7.5 ECTS
- NGEA09056U Numerical Modelling in Fluvial, Coastal, Estuarine and Marine Environment Block 3 7.5 ECTS
- NIGK15027U Surface Hydrology Block 3 7.5 ECTS
- NIGK15005U Ecological Modelling Block 4 7.5 ECTS
- NIGK17007U Advanced Soil Science and Isotope Geochemistry Block 4 7.5 ECTS

2) Up to 30 ECTS are to be covered as subject elements from the following list (thesis, 45 ECTS credit)
Up to 15 ECTS are to be covered as subject elements from the following list (thesis, 60 ECTS credit)

- NIGK17010U Remote Sensing of the Bio-Geosphere Block 1 7.5 ECTS
- NGEK10002U Applied GIS and Geoinformatics for Urban Spatial Analysis Block 1 7.5 ECTS
- NIGK17008U Environment, Society and Development Block 1 7.5 ECTS
- NIGK14009U Land Use Transitions in the Global South Block 1 7.5 ECTS
- NIGK14056U Climate Change and Water Resources Block 1 7.5 ECTS
- NIGK14055U Interdisciplinary Project Course Block 1 7.5 ECTS
<table>
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<th>ECTS</th>
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<td>NIGK15001U</td>
<td>Advanced Geoinformatics</td>
<td>Block 2</td>
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<tr>
<td>NIGK17011U</td>
<td>Spatial and Temporal Pattern Analysis</td>
<td>Block 2</td>
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<tr>
<td>NIGK15011U</td>
<td>Geopolitics of Climate Change</td>
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<td>NIGK15006U</td>
<td>Field and Methods Course in Geography and Geoinformatics</td>
<td>Block 1+2</td>
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<tr>
<td>NIGK17012U</td>
<td>Remote Sensing in Land Science Studies</td>
<td>Block 3</td>
<td>7.5</td>
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<td>Project Management and Planning</td>
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<td>NIGK15002U</td>
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<tr>
<td>NFKK14006U</td>
<td>Project in Practice</td>
<td>Block 1-5</td>
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</table>

**6.7.2 Elective subject elements**

15 ECTS are to be covered as elective subject elements. All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 15 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme by up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may not exceed 15 ECTS in total on the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.

**6.7.3 Thesis**

The MSc Programme in Geography and Geoinformatics with a specialisation in Physical Geography includes a thesis corresponding to 45 or 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

**6.7.4 Academic mobility**

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Physical Geography (thesis, 45 ECTS) is placed in block 3+4 of the first year.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Physical Geography (thesis, 60 ECTS) is placed in block 3+4 of the first year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.
In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

6.3 Human Geography
The specialisation is set at 120 ECTS and consists of the following elements:

- Compulsory courses, 15 ECTS.
- Restricted elective subject elements
  - 45 ECTS (thesis, 45 ECTS).
  - 30 ECTS (thesis, 60 ECTS).
- Elective subject elements, 15 ECTS.
- Thesis, 45 or 60 ECTS.

6.3.1 Compulsory subject elements
All of the following subject elements are to be covered (15 ECTS):

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
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</thead>
<tbody>
<tr>
<td>NIGK17008U</td>
<td>Environment, Society and Development</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK17015U</td>
<td>Transformation of Cities and Landscapes: Globalisation and Local Strategies</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>

6.3.2 Restricted elective subject elements
1) At least 15 ECTS are to be covered as subject elements from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGK14009U</td>
<td>Land Use Transitions in the Global South</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK10015U</td>
<td>The Dynamics of City Regions: Social and Economic Change</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK11006U</td>
<td>International Migration - Flows, Networks and Diasporas</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK10018U</td>
<td>Countryside Planning: Policies, Processes and Regulation</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK10024U</td>
<td>Globalisation and Dynamics in Global Value Chains</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK17009U</td>
<td>Livelihoods and Rural-Urban Connections in the Global South</td>
<td>Block 4</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>

2) Up to 30 ECTS are to be covered as subject elements from the following list (thesis, 45 ECTS):
Up to 15 ECTS are to be covered as subject elements from the following list (thesis, 60 ECTS):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Block</th>
<th>ECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGK17010U</td>
<td>Remote Sensing of the Bio-Geosphere</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK1002U</td>
<td>Applied GIS and Geoinformatics for Urban Spatial Analysis</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK17013U</td>
<td>Ecosystems, Climate and Climate Change</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK14055U</td>
<td>Interdisciplinary Project Course</td>
<td>Block 1</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK15001U</td>
<td>Advanced Geoinformatics</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK17011U</td>
<td>Spatial and Temporal Pattern Analysis</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK15011U</td>
<td>Geopolitics of Climate Change</td>
<td>Block 2</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK15006U</td>
<td>Field and Methods Course in Geography and Geoinformatics</td>
<td>Block 1+2</td>
<td>15 ECTS</td>
</tr>
<tr>
<td>NIGK17012U</td>
<td>Remote Sensing in Land Science Studies</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NGEK10027U</td>
<td>Project Management and Planning</td>
<td>Block 3</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>LFKK10246U</td>
<td>Thematic Course: Interdisciplinary Land Use and Natural Resource Management</td>
<td>Block 3</td>
<td>15 ECTS</td>
</tr>
<tr>
<td>NGEA06026U</td>
<td>Lærenstalernes Fælles Byplankursus</td>
<td>Block 3+4</td>
<td>15 ECTS</td>
</tr>
<tr>
<td>NIGK15002U</td>
<td>Aerial and Near-field Remote Sensing</td>
<td>Block 4</td>
<td>7.5 ECTS</td>
</tr>
<tr>
<td>NIGK15021U</td>
<td>Programming, Customization and Automation in GIS</td>
<td>Block 4</td>
<td>7.5 ECTS</td>
</tr>
</tbody>
</table>
6.8.2 Elective subject elements

15 ECTS are to be covered as elective subject elements. All subject elements at MSc level may be included as elective subject elements in the MSc Programme.

BSc subject elements corresponding to 15 ECTS may be included in the MSc Programme.

Projects outside the course scope may be included in the elective section of the programme by up to 15 ECTS. The regulations are described in Appendix 5 to the shared section of the curriculum.

Projects in practice may not exceed 15 ECTS in total on the restricted elective and elective section of the programme. Project in practice may be written as a combination of the restricted elective and elective section of the programme. The regulations are described in Appendix 4 to the shared section of the curriculum.

6.8.3 Thesis

The MSc Programme in Geography and Geoinformatics with a specialisation in Human Geography includes a thesis corresponding to 45 or 60 ECTS, as described in Appendix 2 to the shared curriculum. The thesis must be written within the academic scope of the programme.

6.8.4 Academic mobility

The curriculum makes it possible to follow subject elements outside the Faculty of Science.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Human Geography (thesis, 45 ECTS) is placed in block 3+4 of the first year.

The academic mobility for the MSc Programme in Geography and Geoinformatics with a specialisation in Human Geography (thesis, 60 ECTS) is placed in block 3+4 of the first year.

Academic mobility requires that the student follows the rules and regulations regarding pre-approval and credit transfer.

In addition the student has the possibility to arrange similar academic mobility in other parts of the programme.

7 Exemptions

In exceptional circumstances, the study board may grant exemptions from the rules in the curriculum specified solely by the Faculty of Science.
8 Commencement etc.

8.1 Validity
This subject specific section of the curriculum applies to all students enrolled in the programme – see however Appendix 2.

8.2 Transfer
Students enrolled on previous curricula may be transferred to the new one as per the applicable transfer regulations or according to an individual credit transfer by the study board.

8.3 Amendment
The curriculum may be amended once a year so that any changes come into effect at the beginning of the academic year. Amendments must be proposed by the study board and approved by the Dean.

Notification about amendments that tighten the admission requirements for the programme will be published online at www.science.ku.dk one year before they come into effect.

If amendments are made to this curriculum, an interim arrangement may be added if necessary to allow students to complete their MSc Programme according to the amended curriculum.
### Appendix 1 Tables

#### Table – Geoinformatics (thesis, 45 ECTS)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td><strong>Remote Sensing of the Bio-Geosphere</strong></td>
<td><strong>Advanced Geoinformatics</strong></td>
<td><strong>Restricted elective</strong></td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Elective</strong></td>
</tr>
</tbody>
</table>

Compulsory: ☐  Restricted elective: ☐  Elective: ☐  The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

#### Table – Geoinformatics (thesis, 60 ECTS)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td><strong>Remote Sensing of the Bio-Geosphere</strong></td>
<td><strong>Advanced Geoinformatics</strong></td>
<td><strong>Restricted elective</strong></td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Elective</strong></td>
</tr>
</tbody>
</table>

Compulsory: ☐  Restricted elective: ☐  Elective: ☐  The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

#### Table – Physical Geography (thesis, 45 ECTS)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td><strong>Ecosystems, Climate and Climate Change</strong></td>
<td><strong>Fluvial and Estuarine Geoscience</strong></td>
<td><strong>Restricted elective</strong></td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Elective</strong></td>
</tr>
</tbody>
</table>

Compulsory: ☐  Restricted elective: ☐  Elective: ☐  The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.

#### Table – Physical Geography (thesis, 60 ECTS)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td><strong>Ecosystems, Climate and Climate Change</strong></td>
<td><strong>Fluvial and Estuarine Geoscience</strong></td>
<td><strong>Restricted elective</strong></td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Restricted elective</strong></td>
<td><strong>Elective</strong></td>
</tr>
</tbody>
</table>

Compulsory: ☐  Restricted elective: ☐  Elective: ☐  The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.
<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
<th>Block 3</th>
<th>Block 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment, Society and Development</td>
<td>Transformation of Cities and Landscapes: Globalisation and Local Strategies</td>
<td>Restricted elective</td>
<td>Restricted elective</td>
</tr>
<tr>
<td>Restricted elective</td>
<td>Restricted elective</td>
<td>Elective</td>
<td>Elective</td>
</tr>
<tr>
<td><strong>2nd year</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted elective</td>
<td>Restricted elective</td>
<td>Thesis</td>
<td></td>
</tr>
</tbody>
</table>

The table illustrates the recommended academic progression. The student is allowed to plan an alternative progression within the applicable rules.
Appendix 2 Interim arrangements

There are currently no interim arrangements to this curriculum.
Appendix 3 Description of objectives for the thesis

After completing the thesis, the student should have:

Knowledge about:
- Advanced theories and methodologies of the geographical field of study
- Scientific problems within the study programme’s subject areas and the student’s field(s) of specialisation.
- A suitable combination of methodologies/theories based on international research for use in his/her work with the problem formulation.
- A critical approach to natural, environmental or societal structures and changes and the process-related and spatial aspects of such changes.

Skills in/to:
- Take a scientific, problem-oriented and critical approach to geographically relevant issues within aspects of the nature, the environment or society.
- Work at a high scientific level within the geographical field of study and the student’s field(s) of specialisation.
- Apply and critically evaluate theories/methodologies, including their applicability and limitations.
- Assess the extent to which the production and interpretation of findings/material depend on the theory/methodology chosen and the delimitation chosen.
- Discuss academic issues arising from the thesis.
- Draw conclusions in a clear and academic manner in relation to the problem formulation and, more generally, considering the topic and the subject area.
- Discuss and communicate the academic and social significance, if any, of the thesis based on ethical principles.

Competences in/to:
- Initiating and performing academic work in a research context.
- Identifying, proposing and preparing proposals to solving complex geographical problems in terms of theory, methodology and empiricism based on independently acquired knowledge at a high academic level.
- Integrating, discussing and putting into perspective theoretical, methodological and empirical choices, for example demonstrating reflective and critical thinking about the choices made and the possibilities and limitations of science in relation to a specific problem.
- Solving complex problems and carry out development assignments in a work context.