



SOFIA UNIVERSITY "ST. KLIMENT OF OHRID"

FACULTY OF GEOLOGY AND GEOGRAPHY

## CURRICULUM

Signed by: \_\_\_\_\_



Approved by the Academic Council  
Record of Proceedings No. ....

*4 30 и 31 януари 2023 г.  
електронно гласуване*

Professional field: 4.4. EARTH SCIENCES

Educational and Qualification Degree: BA

Specialization: CLIMATE CHANGE AND MANAGEMENT  
(in English)

|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| G | G | K | 0 | 7 | 0 | 4 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|

Form of study: regular/full time

Length of study (number of semesters): 8

Professional Qualification: BA in Climate Change and Management

## Qualifying characteristic

### Specialization: CLIMATE CHANGE AND MANAGEMENT

#### 1. Orientation, educational goals

Climate Change and Management is an English-taught 4-year undergraduate interdisciplinary program that explores the environmental, socio-economic and political aspects of climate change. It prepares graduates with the understanding and skills to work in the expanding climate change sector. The climate crisis remains the defining issue of this century, with expected dramatic consequences not only for the global environment, but also for human health, well-being and all economic sectors. This poses a set of new challenges for society and has created a high demand for professionals with up-to-date knowledge of climate change with competence in adaptation and mitigation strategies, approaches and technologies.

#### 2. Training (knowledge and skills necessary for successful professional activity; general theoretical and special training, etc )

The curriculum is divided into 8 semesters and includes two main groups of disciplines: compulsory and elective. In the process of study, students will receive complex interdisciplinary training related to the understanding of changes in the climate, the environment and the geographical space in general. They will also acquire specialized knowledge related to the use of various approaches, methods and technologies aimed both at the analysis of specialized data and information, and at the development and implementation of policies and decisions aimed at the effective adaptation of society, the economy and the environment. the changing climate and its consequences. The program covers the main fields of earth and climate sciences, as well as social and economic sciences. It is also designed to acquire the necessary presentation and communication skills essential for public understanding of these issues.

#### 3. Professional and general competences, specific competences

Graduates of the specialty will be able to collect, classify, evaluate and interpret data from the fields of geography, climatology and the environment in order to solve specific tasks. Will apply the acquired knowledge and skills in new or unfamiliar conditions related to supporting solutions arising from issues related to adaptation to climate change from all spheres of economic and social life. Will demonstrate the ability to analyze in a broader or interdisciplinary context the problems affecting consequences or action related to climate change and the opportunities for managing actions related to adaptation to these changes. It will use new strategic approaches. They will form and express their own opinion on emerging social and ethical issues in the process of the work of the bodies performing activities on the adaptation of the economy and society to the changes.

Graduates of the program will receive a bachelor's degree in climate change and management and will have professional competencies in:

- Understanding climate models and climate forecasts and how they can be used to analyze and assess possible future scenarios;
- Use of geospatial technologies and Earth observation methods in the analysis and interpretation of climate change problems and their projection on geography;
- National and international climate policy and how this policy is implemented;
- Effects of climate change on landscapes, geosystems and societies, and knowledge of ecosystem services and nature-based solutions;
- Transformation of the economy and the production and use of energy in a more ecological direction;
- Possess the necessary competencies in mapping and assessing climate and natural risks in planning and management processes;
- Skills and knowledge to develop strategies, actions and tools for adapting to climate change and mitigating negative effects for the environment, society and economy;

- Skills and knowledge to effectively communicate climate change issues and solutions.

**4. Professional realization (according to the National Classification of Professions and Positions in the Republic of Bulgaria / international classifications and according to the position of the future specialist in the national qualification framework for higher education and the qualification framework of the European Higher Education Area)**

In accordance with the ESCO classification <sup>1</sup>(the multilingual European classification of skills, competences, qualifications and professions), graduates of the specialty will receive professional competences and skills for the professions of geographer, climatologist and environmental specialist, as well as knowledge and skills in the field of spatial and urban planning and management related to the adaptation of territorial systems to climate change.

---

<sup>1</sup><https://esco.ec.europa.eu/en>  
05.2.2023 г.

G G K 0 7  
code of spec.

Major "Climate Change and Management" (in English), full time  
for the graduating class that started in the 2023/2024 academic year

| no | discipline code | Name of the study discipline | Type - C, E, O | semester | ECTS credits | Hours - total number |          |                 |   |            | Weekly employment | Form of evaluation* - e, ca, m, a |
|----|-----------------|------------------------------|----------------|----------|--------------|----------------------|----------|-----------------|---|------------|-------------------|-----------------------------------|
|    |                 |                              |                |          |              | Everything           | Lectures | Seminar classes | Practical management / business / extracurricular | employment |                   |                                   |
| 1  | 2               | 3                            | 4              | 5        | 6            | 7                    | 8        | 9               | 10  | 11         | 12                | 13                                |

**Compulsory disciplines**

|    |         |  |   |   |   |     |    |    |    |     |     |   |
|----|---------|--|---|---|---|-----|----|----|----|-----|-----|---|
| 1  | 0 0 0 1 | Basic geographic concepts                                | C | 1 | 5 | 150 | 30 | 15 | 0  | 105 | 2+1 | e |
| 2  | 0 0 0 2 | Basics of Climate Science                                | C | 1 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 3  | 0 0 0 3 | Introduction to policy making and strategic planning     | C | 1 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 4  | 0 0 0 4 | Introduction to Geospatial Technologies                  | C | 1 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 5  | 0 0 0 5 | Economics  | C | 1 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 6  | 0 0 0 6 | Geology and geological hazards                           | C | 1 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 7  | 0 0 0 7 | Mathematics and statistics                               | C | 2 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 8  | 0 0 0 8 | Fundamentals of the Earth System                         | C | 2 | 8 | 240 | 30 | 0  | 30 | 180 | 2+2 | e |
| 9  | 0 0 0 9 | Principles of Ecology                                    | C | 2 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 10 | 0 0 1 0 | Geoinformatics and GIS                                   | C | 2 | 7 | 210 | 30 | 0  | 30 | 150 | 2+2 | e |
| 11 | 0 0 1 1 | hazards  | C | 2 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 12 | 0 0 1 2 | Remote sensing and Earth observation methods             | C | 3 | 6 | 180 | 30 | 0  | 30 | 120 | 2+2 | e |
| 13 | 0 0 1 3 | Landscape Ecology and Management of Environmental Change | C | 3 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 14 | 0 0 1 4 | Climate models and reanalysis                            | C | 3 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 15 | 0 0 1 5 | Climate resources and meteorological hazards             | C | 3 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 23 | 0 0 2 3 | Environmental Law and Regulations                        | C | 4 | 4 | 120 | 30 | 0  | 15 | 75  | 2+1 | e |
| 24 | 0 0 2 4 | Regional policy and development                          | C | 4 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 25 | 0 0 2 5 | EU climate change and adaptation policy                  | C | 4 | 4 | 120 | 30 | 0  | 15 | 75  | 2+2 | e |
| 26 | 0 0 2 6 | Introduction to spatial and urban planning               | C | 4 | 5 | 150 | 30 | 0  | 30 | 90  | 2+2 | e |
| 27 | 0 0 2 7 | Sociology  | C | 4 | 4 | 120 | 30 | 0  | 30 | 60  | 2+2 | e |

форма на оценяване

и-изпит, то-текуща оценка,

ки-комбинирано изпитване,

прод.- продължава в сл. семестър

По решение на ДС съотношението аудиторна / извънаудиторна заетост на студентите е 1:1

|    |   |   |   |   |   |   |   |   |     |    |   |    |    |     |   |
|----|---|---|---|---|---|---|---|---|-----|----|---|----|----|-----|---|
| 28 | 0 | 0 | 2 | 8 | Public administration and management  | C | 5 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | e |
| 29 | 0 | 0 | 2 | 9 | Geodemographic models for climate change research                               | C | 5 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | e |
| 30 | 0 | 0 | 3 | 0 | Sustainable energy resources and management                                     | C | 5 | 3 | 90  | 30 | 0 | 15 | 45 | 2+1 | e |
| 31 | 0 | 0 | 3 | 1 | Natural capital and ecosystem services  | C | 5 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | e |
| 32 | 0 | 0 | 3 | 2 | Strategies and solutions for climate change adaptation and mitigation           | C | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 33 | 0 | 0 | 3 | 3 | Public finances   | C | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 34 | 0 | 0 | 3 | 4 | Mapping and assessment of natural hazards and risks                             | C | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 35 | 0 | 0 | 3 | 5 | Social and psychological impacts of climate change                              | C | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 36 | 0 | 0 | 3 | 6 | Agroclimatic resources and climate change                                       | C | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 37 | 0 | 0 | 3 | 7 | Project management  | C | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | e |
| 38 | 0 | 0 | 3 | 8 | Environmental assessment procedures and methods                                 | C | 7 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | e |
| 39 | 0 | 0 | 3 | 9 | Unmanned aerial systems and applications for climate and environmental research | C | 7 | 5 | 150 | 45 | 0 | 45 | 60 | 3+3 | e |

#### Electives disciplines

the selected courses must carry the following number of credits: in III semester - 9 credits; in IV sem. - 8 credits; in V sem. - 8 credits; in VI sem. - 12 credits; in VII sem. - 16 credits; in VIII sem. - 20 credits.

|    |   |   |   |   |   |   |   |   |     |    |   |    |    |     |    |
|----|---|---|---|---|---|---|---|---|-----|----|---|----|----|-----|----|
| 40 | 0 | 0 | 4 | 0 | Geodata collection and processing                   | E | 3 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 41 | 0 | 0 | 4 | 1 | Satellite meteorology                               | E | 3 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 42 | 0 | 0 | 4 | 2 | Sustainable Development Practices                   | E | 3 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 43 | 0 | 0 | 4 | 3 | Biogeochemical cycles                               | E | 3 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 44 | 0 | 0 | 4 | 4 | Biodiversity and climate change                     | E | 3 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 45 | 0 | 0 | 4 | 5 | Geodatabases-practicum                              | E | 3 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 46 | 0 | 0 | 4 | 6 | Weather forecast and presentation                   | E | 3 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 47 | 0 | 0 | 4 | 7 | Urban climatology                                   | E | 4 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 48 | 0 | 0 | 4 | 8 | GIS applications for sustainable development        | E | 4 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 49 | 0 | 0 | 4 | 9 | Institutions and governance of the European Union   | E | 4 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 50 | 0 | 0 | 5 | 0 | Ecological Footprint                                | E | 4 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 51 | 0 | 0 | 5 | 1 | Political Communications and Marketing              | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 52 | 0 | 0 | 5 | 2 | Economic geography of the EU                        | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 53 | 0 | 0 | 5 | 3 | Climate Chemical Interactions: Ocean, Soil, and Air | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |

форма на оценяване:  
и-изпит, то-текуща оценка,  
ки-комбинирано изпитване,  
прод. - продължава в сл. семестър

|    |   |   |   |   |  |   |   |   |     |    |   |    |    |     |    |
|----|---|---|---|---|--|---|---|---|-----|----|---|----|----|-----|----|
| 54 | 0 | 0 | 5 | 4 | Geopolitics and Climate Diplomacy                | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 55 | 0 | 0 | 5 | 5 | Tourism and climate change                       | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 56 | 0 | 0 | 5 | 6 | Global environmental problems and issues         | E | 5 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 57 | 0 | 0 | 5 | 7 | Geodesign  | E | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 58 | 0 | 0 | 5 | 8 | Smart cities and regions                         | E | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 59 | 0 | 0 | 5 | 9 | Carbon accounts and reporting                    | E | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 60 | 0 | 0 | 6 | 0 | Sustainable tourism business and practices       | E | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 61 | 0 | 0 | 6 | 1 | Principles and practices of the circular economy | E | 6 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 62 | 0 | 0 | 6 | 2 | Energy Business and Strategies                   | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 63 | 0 | 0 | 6 | 3 | Bioclimatic and recreational resources           | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 64 | 0 | 0 | 6 | 4 | Public engagement for climate change adaptation  | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 65 | 0 | 0 | 6 | 5 | Financial markets and climate change             | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 66 | 0 | 0 | 6 | 6 | Climate and natural risk management              | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 67 | 0 | 0 | 6 | 7 | Sustainable urban design                         | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 68 | 0 | 0 | 6 | 8 | Mobile mapping and field work                    | E | 7 | 4 | 120 | 30 | 0 | 30 | 60 | 2+2 | ca |
| 69 | 0 | 0 | 6 | 9 | Sustainable entrepreneurship                     | E | 8 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 70 | 0 | 0 | 7 | 0 | Green transition policy and strategies           | E | 8 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 71 | 0 | 0 | 7 | 1 | Managing food security under climate change      | E | 8 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 72 | 0 | 0 | 7 | 2 | Sustainable forestry                             | E | 8 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 73 | 0 | 0 | 7 | 3 | Academic writing and presentation                | E | 8 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |

#### Optional subjects

|    |   |   |   |   |                    |   |   |   |     |    |   |    |    |     |    |
|----|---|---|---|---|--------------------|---|---|---|-----|----|---|----|----|-----|----|
| 74 | 0 | 0 | 7 | 4 | Bulgarian language | E | 1 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 75 | 0 | 0 | 7 | 5 | Bulgarian language | E | 2 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |
| 76 | 0 | 0 | 7 | 6 | Sports             | E | 2 | 5 | 150 | 30 | 0 | 30 | 90 | 2+2 | ca |

#### Learning practices

| no | code | Name of practice | Type - C, E, O | Semester | ECTS - credits                                     | Weeks | Hours | Form of control - e, ca, m |   |    |   |
|----|------|------------------|----------------|----------|--|-------|-------|----------------------------|---|----|---|
| 77 | 0    | 0                | 7              | 7        | Climate Change Adaptation and Mitigation Practices | C     | 6     | 2                          | 2 | 60 | e |

форма на оценяване:  
и-изпит, то-текуща оценка,  
ки-комбинирано изпитване,  
прод. - продължава в сл. семестър

Sofia University "St. Kliment Ohridski"

Reference - extract from the curriculum  
 Major "Climate Change and Management"  
 form of education regular, duration of education 8 semesters

| Type of employment     | Workload, ECTS-credits and grades by semester |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |                  |                |                 |     |    |
|------------------------|---|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|------------------|----------------|-----------------|-----|----|
|                        | I semester                                    |                |                 | II semester      |                |                 | III semester     |                |                 | IV semester      |                |                 | V semester       |                |                 | VI semester      |                |                 | VII semester     |                |                 | VIII semester    |                |                 | IX               | X              | Total           |                  |                |                 |     |    |
|                        | workload (hours)                              | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations | workload (hours) | ECTS - credits | No. evaluations |     |    |
| compulsory disciplines | 345   | 30             | 6               | 300              | 30             | 5               | 240              | 21             | 4               | 285              | 22             | 5               | 285              | 22             | 5               | 240              | 16             | 4               | 210              | 14             | 3               | 0                | 0              | 0               |                  |                |                 |                  |                | 1905            | 155 | 32 |
| min. electives         | 0   | 0              | 0               | 0                | 0              | 0               | 120              | 9              | 2               | 120              | 8              | 2               | 120              | 8              | 2               | 180              | 12             | 3               | 240              | 16             | 4               | 240              | 20             | 4               |                  |                |                 |                  |                | 1020            | 73  | 17 |
| optional learning      | 0   | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               | 0                | 0              | 0               |                  |                |                 |                  |                | 0               | 0   | 0  |
| auditorium occupancy   | 345   | 30             | 6               | 300              | 30             | 5               | 360              | 30             | 6               | 405              | 30             | 7               | 405              | 30             | 7               | 480              | 30             | 8               | 450              | 30             | 7               | 240              | 20             | 4               |                  |                |                 |                  |                | 2985            | 230 | 50 |
| <b>Total:</b>          | <b>750</b>                                    |                |                 | <b>900</b>       |                |                 | <b>980</b>       |                |                 | <b>900</b>       |                |                 | <b>900</b>       |                |                 | <b>840</b>       |                |                 | <b>900</b>       |                |                 | <b>600</b>       |                |                 |                  |                |                 | <b>6770</b>      |                |                 |     |    |

| Method of graduation                        | ECTS - credits | Number of hours to prepare | First state session | Second state session |
|---|----------------|----------------------------|---------------------|----------------------|
| State Exam on Climate Change and Governance | 10             | 300                        | September           | March                |

Acquired professional qualification: BA in Climate Change and Management

FC decision number: 11/13/12/2022

Dean:

