

## Subject card

|                                             |                                                                                                                                                                                                                                                                                                                         |                                                          |                                         |                                     |                                                |            |     |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------|-------------------------------------|------------------------------------------------|------------|-----|
| Subject name and code                       | Extreme natural phenomena, PG_00168254                                                                                                                                                                                                                                                                                  |                                                          |                                         |                                     |                                                |            |     |
| Field of study                              | Land Management                                                                                                                                                                                                                                                                                                         |                                                          |                                         |                                     |                                                |            |     |
| Date of commencement of studies             | October 2025                                                                                                                                                                                                                                                                                                            |                                                          | Academic year of realisation of subject |                                     | 2025/2026                                      |            |     |
| Education level                             | Master's studies                                                                                                                                                                                                                                                                                                        |                                                          | Subject group                           |                                     | Obligatory subject group in the field of study |            |     |
| Mode of study                               | full-time studies                                                                                                                                                                                                                                                                                                       |                                                          | Mode of delivery                        |                                     | at the university                              |            |     |
| Year of study                               | 1                                                                                                                                                                                                                                                                                                                       |                                                          | Language of instruction                 |                                     | Polish                                         |            |     |
| Semester of study                           | 1                                                                                                                                                                                                                                                                                                                       |                                                          | ECTS credits                            |                                     | 2.0                                            |            |     |
| Learning profile                            | academic                                                                                                                                                                                                                                                                                                                |                                                          | Assessment form                         |                                     |                                                |            |     |
| Conducting unit                             | Institute of Socio-Economic Geography and Spatial Management -> Faculty of Social Sciences -> Rector                                                                                                                                                                                                                    |                                                          |                                         |                                     |                                                |            |     |
| Name and surname of lecturer (lecturers)    | Subject supervisor                                                                                                                                                                                                                                                                                                      |                                                          | dr Sylwia Horska-Schwarz                |                                     |                                                |            |     |
|                                             | Teachers                                                                                                                                                                                                                                                                                                                |                                                          |                                         |                                     |                                                |            |     |
| Lesson types                                | Lesson type                                                                                                                                                                                                                                                                                                             | Lecture                                                  | Tutorial                                | Laboratory                          | Project                                        | Seminar    | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                   | 30.0                                                     | 0.0                                     | 0.0                                 | 0.0                                            | 0.0        | 30  |
|                                             | E-learning hours included: 0.0                                                                                                                                                                                                                                                                                          |                                                          |                                         |                                     |                                                |            |     |
| Learning activity and number of study hours | Learning activity                                                                                                                                                                                                                                                                                                       | Participation in didactic classes included in study plan |                                         | Participation in consultation hours |                                                | Self-study | SUM |
|                                             | Number of study hours                                                                                                                                                                                                                                                                                                   | 30                                                       |                                         | 15.0                                |                                                | 15.0       | 60  |
| Subject objectives                          | Knowledge of the occurrence of types of extreme events in Poland and the ability to identify areas at increased risk of occurrence; methods of protection against the occurrence of extreme meteorological, hydrological and geomorphological events and methods to minimise the consequences of extreme natural events |                                                          |                                         |                                     |                                                |            |     |

| Learning outcomes               | Course outcome                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Subject outcome                                                                                                                                                                                                                                                                                                                                                                                                         | Method of verification            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
|                                 | [GPMU2_K01] critically assess possessed knowledge and received content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | critically appraises the level of his/her professional and personal competence, understands the need to improve them, and updates and extends his/her knowledge and skills in the field of extreme meteorological phenomena, hydrology and meteorology                                                                                                                                                                  | [SK4] test/exam - oral or written |
|                                 | [GPMU2_U05] formulate and test hypotheses regarding determinants (natural, social, economic, cultural, legal) of spatial management                                                                                                                                                                                                                                                                                                                                                                                                                                        | to an advanced level, is able to take into account the possibility and the likelihood of extreme natural phenomena, advise on the location, operation and development of space-intensive businesses, taking into account the principles of sustainable development                                                                                                                                                      | [SU4] test/exam - oral or written |
|                                 | [GPMU2_U01] formulate and solve complex and unusual problems of spatial management and propose their innovative solutions taking into account the unpredictability of spatial processes                                                                                                                                                                                                                                                                                                                                                                                    | correctly identifies and explains the impact of extreme natural phenomena on the spatial management of a specific area and forecasts the impact of these phenomena on the spatial management structure, and on this basis on the basis of this, proposes adequate actions within the framework of spatial policy in particular in relation to the coastal zone of the South Baltic, Coastal and South Baltic Lakes Area | [SU4] test/exam - oral or written |
|                                 | [GPMU2_W03] to a deeper extent the conditions (natural, social, economic, cultural, legal) of processes taking place in spatial management, with particular emphasis on the specifics of Polish maritime areas and voivodships of northern Poland                                                                                                                                                                                                                                                                                                                          | has an extended knowledge of the significance of extreme natural phenomena conditioning spatial management processes with particular emphasis on the physical-geographical specificity of the coastal zone of the South Baltic, South Baltic Coastal and Lake Districts                                                                                                                                                 | [SW4] test/exam - oral or written |
|                                 | [GPMU2_W01] to an in-depth degree the interdisciplinary nature of spatial management and ordered and theoretically founded knowledge of multidimensional approaches in spatial policy                                                                                                                                                                                                                                                                                                                                                                                      | has an extended knowledge and understanding of the interdisciplinary character of spatial management and the necessity of multidimensional approaches in spatial policy, taking into account the influence of extreme natural phenomena on human activity                                                                                                                                                               | [SW4] test/exam - oral or written |
|                                 | [GPMU2_U03] choose and use appropriate methods (including statistics) and research tools with particular emphasis on information technology and GIS software                                                                                                                                                                                                                                                                                                                                                                                                               | can identify areas in need of protection against extreme natural phenomena and propose its complex forms, methods and tools                                                                                                                                                                                                                                                                                             | [SU4] test/exam - oral or written |
| Subject contents                | <p>1. extreme temperatures, methods to minimise their effects; 2. tropical cyclones of low latitudes, methods of protection; 3. strong winds in temperate latitudes, methods of protection against the effects of strong winds; 4. intense rainfall, droughts, hailstorms, intense snowfall, methods of protection against intense rainfall and droughts; 5. human impact on relief; 6. rare, extreme phenomena their nature and significance in relation to geomorphological processes; 7. the validity of protective measures in extreme geomorphological phenomena;</p> |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |
| Prerequisites and co-requisites |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |
| Assessment methods and criteria | Subject passing criteria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Passing threshold                                                                                                                                                                                                                                                                                                                                                                                                       | Percentage of the final grade     |
|                                 | Test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 51.0%                                                                                                                                                                                                                                                                                                                                                                                                                   | 100.0%                            |

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| Recommended reading | Basic literature | <p>Allen P. A., 2000, Procesy kształtują powierzchnię Ziemi, Wyd. PWN, Warszawa.</p> <p>Graniczny M., Mizerski W. 2009. Katastrofy przyrodnicze. Wydawnictwo Naukowe PWN</p> <p>Kowalczak P., 2008, Zagrożenia związane z deficytem wody, Wydawnictwo Kurpisz SA, Przeźmierowo.</p> <p>Maciejewski M., 1997, Współzależność pogodowych zjawisk ekstremalnych i nadzwyczajnych zagrożeń środowiska, w: Ekstremalne zjawiskameteorologiczne, hydrologiczne i oceanograficzne, Wyd. PTGeofiz., Warszawa, 86-91.</p> <p>Maciejewski M., Ostojki M. (red.), 2006, Zagrożenia środowiska naturalnymi zjawiskami ekstremalnymi, Instytut Meteorologii i Gospodarki Wodnej, Warszawa.</p> <p>Mycielska- Dowgiało i in., 2001, Geomorfologia dynamiczna i stosowana, Wyd. UW, Warszawa.</p> |
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|                                                                | Supplementary literature | <p>Einsele G., 2000, Sedimentary Basins, Evolution, Facies and Sediment Budget, Springer-Verlag, Berlin.</p> <p>Kowalczak P., 2007, Konflikty o wodę, Wydawnictwo Kurpisz SA, Przeźmierowo.</p> <p>Starkel L., 1999, Ulewy, powodzie i inne zdarzenia ekstremalne, Prace Komisji Zagrożeń Cywilizacyjnych PAU, 2, Kraków.</p> <p>Starkel L., 1996, Monitoring zdarzeń katastrofalnych, w: Główne problemy monitoringu w Polsce, Zeszyty Naukowe Komitetu Człowiek i Środowisko, 16, 93-106.</p> <p>Tjeerd H.v.A., 2001, Nowe spojrzenie na starą planetę zmienne oblicze Ziemi, PWN, Warszawa.</p> <p>Zwoliński Z., 2008, Wybrane zjawiska ekstremalne pojezierzy polskich, Landform Analysis, 8</p> <p>Migoń P., 2012. Geomorfologia. Wydawnictwo Naukowe PWN. Mörner N. A., 2008.</p> <p>Tsunami events within the Baltic. Polish Geological Institute Special Papers, 23, 71-76.</p> <p>Guterch B., Lewandowska-Marciniak H., 2002. Seismicity and seismic hazard in Poland. Folia Quaternaria, (73), 85-99.</p> <p>Zembaty Z., Cholewicki A., Jankowski, R., Szulc J. 2005. Trzęsienia ziemi 21 września 2004 r. w Polsce północno-wschodniej oraz ich wpływ na obiekty budowlane. Inżynieria i Budownictwo, 61(1), 3-9.</p> |
|                                                                | eResources addresses     | Adresy na platformie eNauczanie:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Example issues/<br>example questions/<br>tasks being completed |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Work placement                                                 | Not applicable           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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