**Course of doctoral studies**

<table>
<thead>
<tr>
<th>Course title</th>
<th>Field of science (branch) code</th>
<th>University / Faculty</th>
<th>Institute / Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potamology</td>
<td>Natural Sciences (Physical Geography) N 006</td>
<td>Vilnius University /Faculty of Chemistry and Geosciences</td>
<td>Institute of Geosciences / Department of Hydrology and Climatology</td>
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<td></td>
<td></td>
<td>Nature research centre</td>
<td>Laboratory of climate and water research</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Study methods</th>
<th>Number of credits allocated</th>
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<th>Number of credits allocated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual work</td>
<td>9</td>
<td>Practical work</td>
<td>1</td>
</tr>
<tr>
<td>Consultations</td>
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**Course annotation**

The course aims: acquaint doctoral students with the structure and development of rivers, hydrological, hydrophysical, hydrochemical and geomorphological processes in rivers, lotic ecotones and their hydrological and ecological significance.

**Hydrosphere.** Hydrosphere components, their water static and dynamic reserves, water renewal time. Hydrosphere integrity and discretion. Hydrological objects and processes.


**River water level fluctuations.** Factors determining water level fluctuations. Water level regime indicators. Water level databases, the longest data sequences in the World, Europe and Lithuania. Relationships between river water level and runoff.


**Thermal and ice regimes of rivers.** Determinants of water temperature. Annual and multiannual change of water temperature, its forecasting. Ice phenomena in rivers. Ice jams and their impact on the river regime. The longest data sequences of ice phenomena in the world and in Lithuania. Changes in river ice phenomena in the context of climate change.

**River (lotic) ecotones.** Ecological and hydrological significance of lotic ecotones. Functions of ecotones. Changes of river ecotones related with river valley evolution and anthropogenic activity in river basin. Influence of aquatic plants on
runoff regime. Effects of channel morphology and runoff on aquatic plants.

**Required readings**


**Recommended reading**


<table>
<thead>
<tr>
<th>Consulting lecturers name, surname</th>
<th>Degree</th>
<th>The most important works in the field of science (branch) have been published during the last 5 years</th>
</tr>
</thead>
</table>
| Julius Taminskas                  | Dr.    | Taminskas, J., Šimanauskienė, R., Linkevičienė, R., Volungevičius, J., Slavinskenė, G., Povilanskas, R., Satkūnas, J. 2020 Impact of hydro-climatic changes on coastal dunes landscape according to normalized difference vegetation index (The case study of Curonian Spit). Water, 12 (11): art. no. 3234

Approved by the Doctoral Committee for Physical Geography (N006) on 9th of March 2021, protocol no. (4.20 E) 610000-KT-24

Committee Chairman assoc. prof. dr. D. Pupienis