

EMPLOYMENT OF GEOGRAPHY STUDY GRADUATES IN LATVIA

ĢEOGRĀFIJAS STUDIJU ABSOLVENTU NODARBINĀTĪBA LATVIJĀ: MONITORINGA DATI

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Abstract

Geography is an interdisciplinary field that explores human-nature interactions. Critical thinking and a knowledge of diverse interrelations are required for the study of geography. Geography graduates must be adaptable and quick learners in order to meet the needs of a continuously changing employment market. The aim of this paper is to investigate the nature of employment for geography graduates. The paper gives an overview of the field of geography and labour market demand for geography graduates. This study is based on the data of the 2021 census, labour market data from the Ministry of Economics, monitoring data from the Ministry of Education and Science on graduates in 2017–2020, and also State Revenue Service data on occupations. The findings demonstrate that higher levels of education lead to better job chances. Graduates of geography study programmes receive qualifications that allow them to work in science-intensive sectors of the economy, such as the professional, scientific, and technical services sector of the quaternary economy.

Keywords: *geography studies, employment, labour market, competences, higher education*

Introduction

Geography is an interdisciplinary field that studies the interaction between people and nature. The study of geography cannot do without critical thinking or an understanding of patterns. Geography graduates need to be flexible and quick learners in order to adapt to the demands of a rapidly changing labour market (Gedye & Chalkley, 2006). GIS is an energetic, growing field with many opportunities. The demand for GIS professionals is increasing as technology becomes more widespread and integrated into our daily lives. The number of available vacancies is forecast to increase by 50% within five years (Simplilearn, 2023). The employment of geographers is difficult to study because this multifaceted discipline can prepare students for a variety of jobs, but there is no clear career profile beyond teaching and using cartographic skills (Hennemann & Liefner, 2010).

In Latvia, the Ministry of Economics report on medium- and long-term labour market projections states that occupational relevance is relatively high in science, mathematics and information technology (78%). If the current structure of higher

education supply is maintained, the most significant labour shortage in the higher education group is expected to be for professionals with a background in engineering, science and ICT (STEM) fields (Ministry of Economics, 2022).

Currently, the degrees awarded at the Faculty of Geography and Earth Sciences of the University of Latvia are bachelor's and master's degrees in geography. No scientific research has been conducted on geography graduates, but research of this kind would significantly contribute to understanding the employability and usefulness of geographers in the labour market, as well as application of the acquired skills and competences in everyday work. The authors of this study analyse the data on graduates from geography study programmes at the Faculty of Science of the University of Latvia in the period from 2017 to 2022. The period chosen for the analysis is a result of the Ministry of Education and Science's monitoring of graduates, which is available starting from 2017.

The aim of the paper is to investigate the nature of employment for geography graduates.

Employment of geographers worldwide

Geography is a constantly evolving field, and so career opportunities for geographers are also constantly evolving. There has been a boom in geospatial careers, which is clearly linked to geographers acquiring technical skills in various geotechnologies, including GIS and geovisualisation. In 2004, the US Department of Labour identified geotechnology as "one of the top three most important emerging and developing fields" (Arrowsmith et al., 2011). Today, geographers are increasingly important. While awareness of the value of geography has increased dramatically over the past decade, much less is known about the everyday practices of geographers and the ways in which they apply their knowledge in their daily work (Schlemper et al., 2014).

It is said that geography is seen less as a subject and more as a definition of technical competences that give an edge in the labour market. This is due to the extensive skills that geographers have developed through studying and learning subjects through hands-on learning activities: laboratory work, practical work and fieldwork, as well as group work (Arrowsmith et al., 2011). However, research shows that geography graduates with "non-vocational" degrees can face difficulties in gaining relevant employment with their qualifications (Brown, 2004). The geography profession is not regulated in Latvia.

Geography graduates are sufficiently qualified to obtain suitable jobs in a wide range of professions, for example, GIS analyst/manager/specialist, spatial planner, technician, analyst, coordinator, lecturer, research assistant, teacher, scientist, cartographer, consultant, project manager, researcher, environmentalist, topographic draughtsman, synoptic surveyor, photogrammetric engineer, etc. (Solem et al., 2008;

SRS, 2022). Geographers also often work on projects with people from other fields. For instance, geographers may work with urban planners, civil engineers, legislators or real estate agents to determine, for example, the best location for new public transport infrastructure (Bureau of Labor Statistics, 2023).

Job opportunities for professional geographers are expanding. Geographers are in demand for the perspectives they offer, their understanding of economic interdependence and the associated forces of globalisation, their understanding and knowledge of human cultures and the environment, and the integrative and interdisciplinary approaches that geographers use in their work (Murphy, 2007; Solem et al., 2013a; Solem et al., 2013b).

According to the United States Department of Labor, on a daily basis, geography graduates:

- gather geographical data using field observations, maps, photographs, satellite images and censuses
- conduct research through surveys, interviews and focus groups
- create and modify maps or other visual representations of geographical data
- analyse the geographical distribution of physical and cultural features and events
- collect, analyse and display geographical data using GIS
- write reports and present research results
- assist, advise or guide others in the use of GIS and geographic data
- link geographic data with economic, health or other data (Bureau of Labor Statistics, 2023).

Employment in Latvia and employment opportunities for graduates

In Latvia in 2021, there were 877.1 thousand employed persons, accounting for 55.2% of all permanent residents aged 15 and above (see Figure 1 for the employment rate in Latvia). The highest employment rate among the population aged 15 and over was in the Pierīga region, where it was 58.8%; it is especially high in the Marupe, Adazi and Kekava regions, where 65.7%, 64.4% and 64.1% respectively are employed, which is also due to there being a higher share of the population aged 15 and over. The lowest share of employed persons was in Latgale, where it was 48.8% (in Ludza, only 46.6% of the population over 15 is employed). The employment rate was 57.1% in Rīga, 54.5% in Vidzeme, 54.3% in Zemgale and 52.7% in Kurzeme (CSP, 2022).

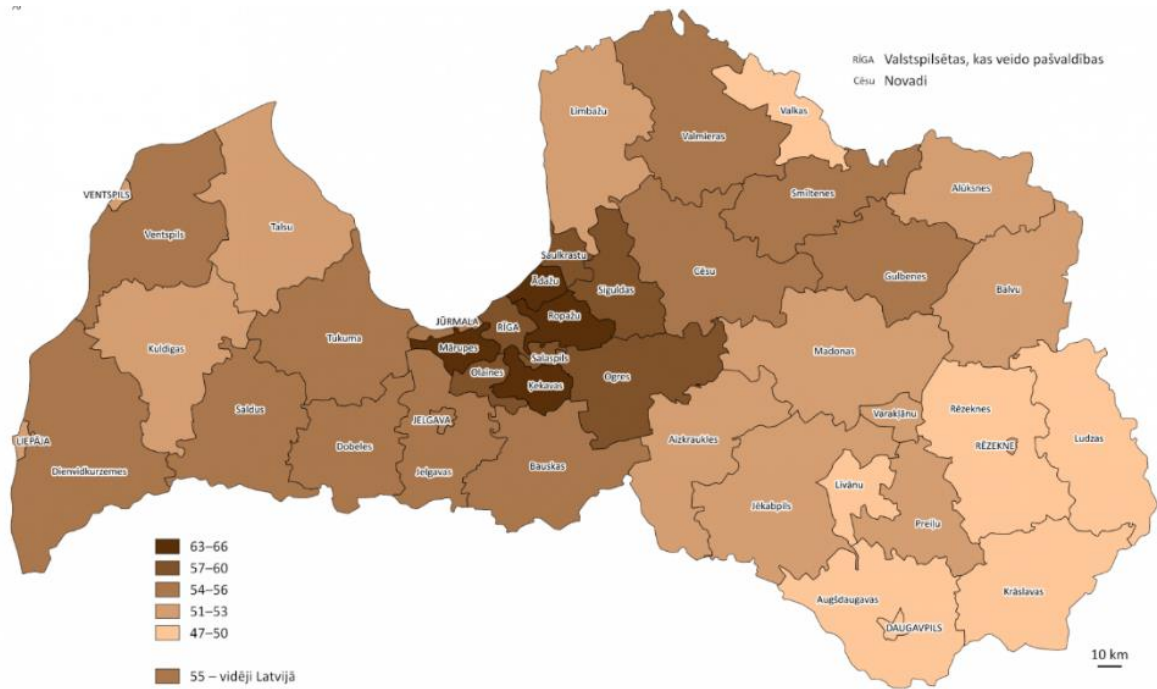


Figure 1. **Employment rate for persons aged 15 and over in cities and regions in Latvia at the beginning of 2021** (authors' figure based on data from CSB)

The challenges of recent years – the Covid-19 pandemic, geopolitical escalation – have left a visible “footprint” on the labour market, with employment and employment rates still lagging behind 2019 levels. The labour market situation is gradually stabilising, with an increase in economic activity, but at the same time labour supply is tightening and labour shortages are increasing (Ministry of Economics, 2023).

Given demographic trends, overall unemployment will continue to fall in both the medium and long term, and could fall below 7% as early as this year. The highest unemployment risks are expected among parts of the population with low educational attainment and without professional skills/vocational qualifications (Ministry of Economics, 2023).

Higher education in Latvia has three levels: bachelor's, master's and doctoral. Universities and higher education institutions provide academic and professional study programmes, as well as scientific activities, research, and artistic creativity (Ministry of Education and Science, 2020). Graduates with higher education qualifications have higher employment rates in almost all fields (see Figure 2.3). The exceptions are the education and services sectors (Ministry of Economics, 2022). The situation regarding higher employment for graduates from secondary vocational education programmes in the education sector is unusual. The labour shortage in the education sector explains this situation, as there was also a shortage of teachers in Latvian schools in 2022, with 360 positions unfilled (Līcīte & Spundiņa, 2022).

Data and methods

For this study, graduate monitoring data from the Ministry of Education and Science available from 2017 onwards were used. In the graduate monitoring data, geography, earth sciences, and chemistry and physics fall under the thematic area of physical sciences, according to Cabinet of Ministers Regulation No. 322. Life sciences, environmental science, physical sciences, mathematics, and statistics, and computer science, which fall under the thematic group “natural sciences, mathematics and information technology”, are taken separately. Since 2020, geography has been separated from geology in the graduate monitoring data, and data without chemistry and physics graduates are available. In addition, data, reports and surveys on the labour market in Latvia, and short-, medium- and long-term labour market forecasts from the Ministry of Economics of the Republic of Latvia were also used. The study used data from the State Revenue Service on jobs in Latvia for the period in question, according to the occupational classification, as well as data from the Central Statistical Office on employment in Latvia. The study also uses data from a survey of graduates of geography study programmes at the Faculty of Geography at the University of Latvia. Various literature sources on international employment of geographers, changes in labour demand, etc. were also used.

Faculty graduates' employability

This chapter describes the employment rate for geography graduates, the economic sectors and industries in which graduates are employed, professional qualifications and average incomes in different occupational groups according to the Ministry of Education and Science graduate monitoring data and data from the State Revenue Service.

The latest graduate monitoring data from the Ministry of Education and Science shows that graduate employment is increasing year on year. The graduate monitoring data includes the subject of physical science education, which includes geography and earth sciences (geography and geology), chemistry and physics. Since 2020, the curriculum groups have been monitored separately, with 97% employment in the geography and earth sciences group.

The largest number of graduates from the University of Latvia from 2017 to 2020 was in the social sciences, with more than 570 students graduating each year. In 2017, social science graduates had the highest employment rate, at 85%; the employment rate for natural science graduates was 81%, for healthcare graduates it was 77%, and for humanities graduates 73%. In 2018, health graduates had the highest employment rate, at 91%, but with only 45 graduates; followed by social sciences at 84% employment, natural sciences at 79% and humanities at 73% employment. In 2019, health graduates have the highest employment at 90%, followed by natural sciences at 87%, social sciences at 84% and finally humanities at 78%. The share of

natural sciences employment exceeded that of social sciences in 2019 and continued to do so in 2020: healthcare with 89% employment, natural sciences with 86%, social sciences with 72% and humanities with 65%. Figure 4.1 suggests that even if a subject group in education has a high number of places and a high number of graduates, this does not necessarily mean that there will be high employment after graduation. It is advisable to look at the forecasts of the Ministry of Economics in order to choose a profession or field of study that will be in demand in the future.

The Ministry of Education and Science’s graduate monitoring data showed that the employment rate of geography bachelor graduates in 2017–2020 ranges from 84% to 93% (see Figure 1). The highest employment rate was observed in 2020, at 93%. The employment rate for graduates with a master’s in geography in 2017–2020 ranges from 89% to 96%. The employment rate for graduates with a master's in geography one year after graduation was the highest in 2020, at 96%. There is a correlation that as the level of education attained increases, so do employment opportunities. The employment rate for graduates with a bachelor’s degree tends to increase every year, reaching the National Development Plan 2027 (NDP2027) target of 88% employment in 2019. The employment rate for graduates with a master’s degree reached the NAP2027 target in 2017.

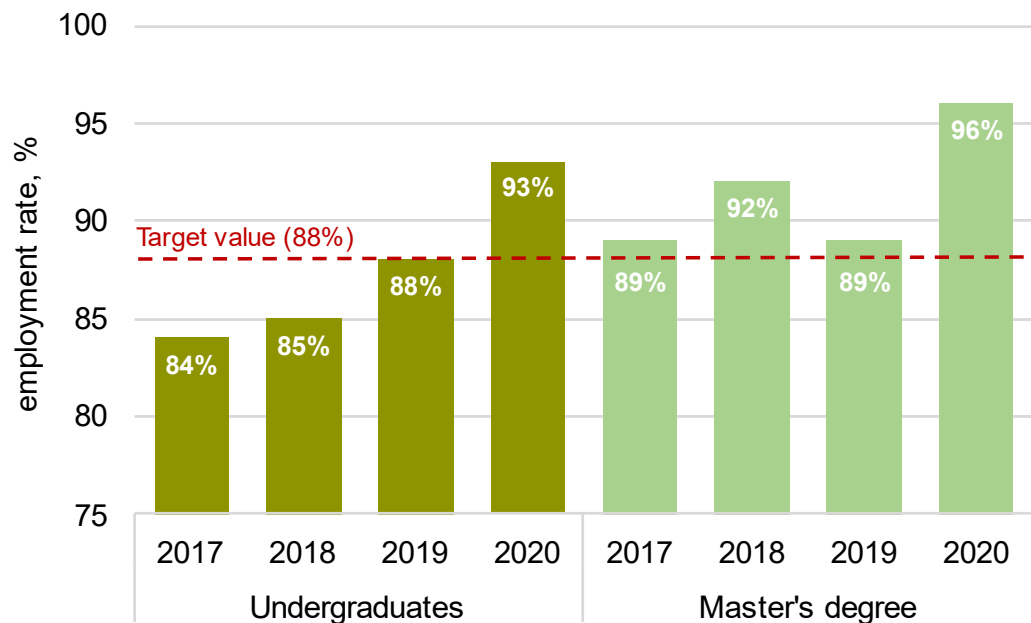


Figure 2. **Employment rate for geography and earth sciences graduates by level of university education, 2017–2020** (authors’ figure based on data from the Ministry of Education and Science)

One of the most important indicators for an economy is the unemployment rate, both for the country as a whole and for a particular sector. In the geography sector, 369 out of 425 graduates (graduates with a bachelor’s or master’s degree), or 87%, are

employed, while 56 graduates, or 13%, are unemployed, which is probably due to the fact that these graduates are pursuing a higher level of education and therefore are not currently working.

Employment of graduates by professional qualification

This section summarises graduate employment by main occupational classification groups, jobs by occupational classification, average earnings of graduates, and a comparison of average hourly earnings by occupation.

The Ministry of Education and Science’s monitoring of graduates includes the following main occupational classification groups: managers, professionals, service and sales workers, senior professionals, servants, skilled workers and craftsmen, National Armed Forces personnel, elementary occupations, as well as a section entitled “no information”. Figure 3 shows the percentage distribution of occupations in which 2017–2020 geography graduates are working. More than half (52%) of the graduates work as senior professionals, with 31.4% working as specialists.

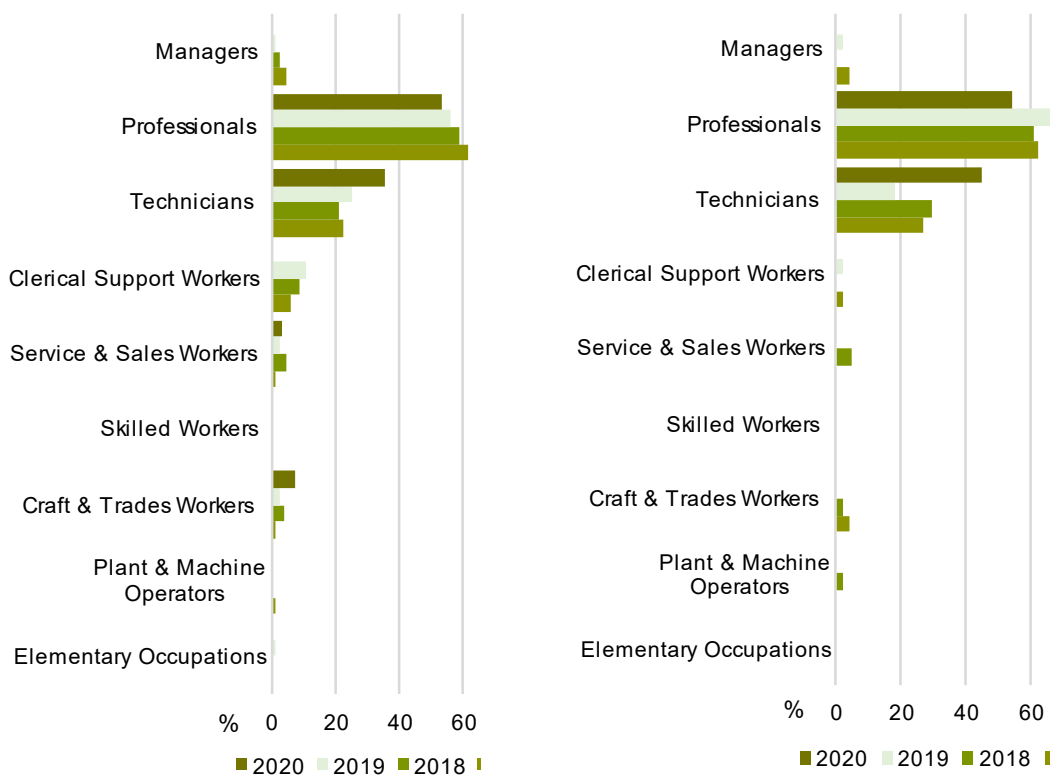


Figure 3. Professional qualification of geography and earth sciences graduates: bachelor’s degree (on left) and master’s degree (on right), 2017–2020 (authors’ figure based on data from the Ministry of Education and Science)

In 2023, according to the National Revenue Service, the largest number of jobs in the geography sector is for science technicians, with 321; followed by cadastral engineers, with 140; land and spatial development planners, with 124; cartographers

and topographic draftsmen, with 99; cartographic and photogrammetric engineers, with 95; geodetic engineers, with 88; geoinformatics engineers, with 69; senior conservationists, with 50; and finally, GIS specialists, with 47 jobs.

The average annual income among geography graduates varies from €9,312 to €17,630. It is clear that graduates with a bachelor's degree are paid much less per year than graduates with a master's degree. As the level of qualification increases, so does the average annual salary. The highest salary in 2019 was €12,159 for bachelor graduates and €17,630 for master graduates.

The highest number of science technicians and the lowest number of geodesy engineers and GIS technicians, but the salaries are inversely proportional. The average hourly rate in 2019–2023 was highest for surveying engineers, at 9.90 €/h; followed by GIS specialists, at 9.20 €/h; land and spatial planners, at 9 €/h; and spatial development planners at 9€/h; followed by senior nature conservation specialists, geoinformatics engineers, cartographers and topographic draughtsmen, cartographic and photogrammetric engineers, cadastral engineers, and finally science technicians, with the lowest average hourly rate being 5.70 €/h.

Conclusion

Overall, in Latvia the largest number of graduates each year is in the social sciences (more than 500 graduates), while the smallest number of graduates is in the service-learning thematic group (fewer than 60 graduates). The highest employment rates between 2017 and 2020 are in the “health and life sciences” thematic group (above 80%).

Higher levels of education lead to better opportunities in the labour market. This is confirmed by the Ministry of Education and Science's graduate monitoring data, showing that both study programmes (bachelor's and master's in geography) have achieved the target values of the National Development Plan.

Most graduates of the University of Latvia's geography study programmes obtain qualifications that allow them to work in science-intensive sectors of the economy, such as the professional, scientific and technical services sector of the quaternary economy – 64% of graduates with a bachelor's degree and 65% of graduates with a master's degree are employed in this sector. Higher degrees of education also contribute to higher average income, according to graduate monitoring statistics from the Ministry of Education and Science. The average hourly rate is higher for geodetic engineers, GIS specialists, and spatial and spatial development planners, and lower for cartographic and photogrammetric engineers, cadastral engineers, and science technicians.

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National Research Programme project "New Solutions for the Study of Demographic and Migration Processes for the Development of a Latvian and European Knowledge Society" (DemoMigPro).

Kopsavilkums

Ģeogrāfija ir starpdisciplināra nozare, kas pēta cilvēka un dabas mijiedarbību. Dažādu savstarpējo saistību apzināšana un kristiskā domāšana ļauj ģeogrāfiem izprast parādību komplekso dabu. Ģeogrāfijas studiju programmu absolventiem jāprot pielāgoties, lai spētu apmierināt nepārtraukti mainīgā darba tirgus prasības. Šī raksta mērķis ir izpētīt ģeogrāfu nodarbinātības raksturu Latvijā. Tiek sniegts pārskats par ģeogrāfijas jomu un darba tirgus pieprasījumu ģeogrāfijas studiju programmu absolventiem. Pašreizējā pētījumā tiek izmantoti 2021. gada tautas skaitīšanas dati, Ekonomikas ministrijas darba tirgus dati, Izglītības un zinātnes ministrijas monitoringa dati par absolventiem 2017.–2020. gadā un Valsts ieņēmumu dienesta dati par profesijām. Rezultāti parāda, ka augstāks izglītības līmenis nodrošina labākas darba izredzes un augstāku atalgojumu. Ģeogrāfijas studiju programmu absolventi iegūst kvalifikāciju, kas ļauj strādāt zinātniski intensīvās ekonomikas nozarēs, piemēram, profesionālo, zinātnisko un tehnisko pakalpojumu sektorā.

References

- Arrowsmith, C., Bagoly-Simő, P., Finchum, A., Oda, K. and Pawson, E. (2011). Student Employability and its Implications for Geography Curricula and Learning Practices. *Journal of Geography in Higher Education*, 35 (3,) 365–377.
- Brown, K. (2004). Employability of Geography Graduates in the GIS and GI-related fields. *Planet*, 13 (1), 18-19.
- Bureau of Labor Statistics, U.S. Department of Labor (2023). Occupational Outlook Handbook, Geographers. <https://www.bls.gov/ooh/life-physical-and-social-science/geographers.html> (11.09.2023)
- Central Statistical Bureau (CSB) of Latvia. (2022). Population statistics (Database).
- Gedye, S. and Chalkley, B. (2006). *Employability within Geography, Earth and Environmental Sciences*. Plymouth: GEES Subject Centre, University of Plymouth.
- Hennemann, S. and Liefner, I. (2010). Employability of German Geography Graduates: The Mismatch between Knowledge Acquired and Competences Required. *Journal of Geography in Higher Education*, 34 (2), 215–230.
- Līcīte, M. and Spundiņa, L. (2022). Skolotāji: Atsevišķos mācību priekšmetos varētu nenotikt stundas. Latvijas Sabiedriskie Mediji: <https://www.lsm.lv/raksts/zinas/latvija/skolotaji-atseviskos-macibu-prieksmetos-varetu-nenotikt-stundas.a471702> (17.03.2023)
- Ministry of Economics. (2022). Informatīvais ziņojums par darba tirgus vidēja un ilgtermiņa prognozēm: <https://www.em.gov.lv/lv/media/14720/download?attachment> (20.01.2023).
- Ministry of Economics. (2023). EM: arvien radīsies jaunas darbavietas augstākās kvalifikācijas profesijās, bet trūks speciālistu ar profesionālo izglītību: <https://www.em.gov.lv/lv/jaunums/em-arvien-radisies-jaunas-darbavietas-augstakas-kvalifikācijas-profesijas-bet-truks-specialistu-ar-profesionalo-izglitibu> (09.05.2023).
- Ministry of Education and Science. (2020). Higher education: <https://www.izm.gov.lv/en/higher-education> (09.05.2023).

- Murphy, A. (2007). Geography's place in Higher Education in the United States. *Journal of Geography in Higher Education*, 31, 121–141.
- Schlemper, B., Adams, J. and Solem, M. (2014). Geographers in Business, Government, and Nonprofit Organizations: Skills, Challenges, and Professional Identities. *The Professional Geographer*, 66 (3), 480–492.
- Simplilearn. (2023). GIS Analyst Salary by Experience and Location: <https://www.simplilearn.com/tutorials/data-science-career-resources/gis-analyst-salary> (21.05.2023)
- Solem, M., Cheung, I. and Schlemper, M.B. (2008). Skills in Professional Geography: An Assessment of Workforce Needs and Expectations. *The Professional Geographer*, 60 (3), 356–373.
- Solem, M., Kollasch, A. and Lee, J. (2013a). Career goals, pathways and competencies of geography graduate students in the USA. *Journal of Geography in Higher Education*, 37 (1), 92–116.
- Solem, M., Foote, K., and Monk, J. (2013b). *Practicing geography: Careers for enhancing society and the environment*. Upper Saddle River, NJ: Pearson Education.
- State Revenue Service. (2022). Informācija par darba vietām 2022.gadā atbilstoši profesiju klasifikatoram: <https://www.vid.gov.lv/lv/informacija-par-darba-vietam-2022gada-atbilstosi-profesiju-klasifikatoram> (24.01.2023)