

Montenegrin Higher Education System from a Regional Perspective

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Abstract

This research focuses on the current positioning of Montenegrin higher education and its performance within a regional Balkan context. The research addresses the need to assess the progress of Balkan universities that are not featured in global ranking lists, whether state or private not-for-profit, in any high-profile international university rankings.

The aim was to provide a regional perspective on Montenegrin higher education through the Academic Ranking of Balkan Universities (ARBU) platform, which is based on Google Scholar citation data. The research used a quantitative approach to evaluate the performance of 4 Montenegrin higher education institutions by comparing them with peer public institutions in the region. It also tracked their performance across academic fields and disciplines and highlighted the output of the top national researchers.

The ARBU findings showed that although Montenegro's higher education system appears small and highly concentrated, it has a high average impact compared with peer regional flagship universities and high citation efficiency per professor. The system is strongly dependent on a single dominant university (University of Montenegro) for national research performance, while small faculty pools in private institutions limit ranking competitiveness.

In summary, this paper provides a useful situational overview of Montenegrin universities and their researchers from a regional viewpoint, helping to lay the groundwork for the future growth

of Montenegro's higher education system.

Keywords: higher education, university rankings, academic ranking of Balkan universities (ARBU), Montenegro, research performance, Balkan universities

1. Introduction

University rankings serve as helpful tools for comparing academic institutions around the world. They turn detailed data into reputation scores that can evolve over time. This process shifts higher education from being a local community effort to becoming part of a global marketplace that fosters competition. Within such a system, universities need to showcase their value and prestige by meeting clear, standardized metrics. Consequently, scientific research is often viewed more like a product - aimed at attracting funding, drawing top students, and boosting national reputation in the global economy - rather than solely focusing on the pursuit of knowledge for its own sake.

This classification system further shapes how strategies are developed, how resources are allocated, and influences nationwide educational policies. Many countries tie public funding, research grants, and institutional independence to rankings such as Shanghai (ARWU), QS, and Times Higher Education.

Therefore, ranking mechanisms do more than assess; they actively shape the reality they evaluate. But what type of ranking do we need, and do we all need the same type? The theory is actively engaged in finding the right angle to observe, analyze, and weigh the ranking lists mechanisms that shape the higher education systems.

2. Literature Review

Since international rankings of higher education systems became prominent, various theoretical perspectives have emerged to examine the forces that influence and shape academic institutions. Proponents of **Institutional Theory**, developed by DiMaggio and Powell (1984) within organizational sociology, emphasize coercive isomorphism, which describes how universities often prioritize imitating "world-class research universities" over their local objectives, leading to isomorphic paradoxes in which institutions adopt similar administrative structures despite differing missions and resources (Hüther & Krücken, 2016).

The Institutional Theory is closely related to the **Field theory**, which analyzes universities, policymakers, and students as interconnected, competitive networks. Grounded in Pierre Bourdieu's sociological framework, it views the academic environment as a structured space where institutions and individuals compete for influence, prestige, and resources, including cultural and economic capital (Morrison, 2017).

Scientometrics in higher education is widely used and serves as a "technology of distance" (Porter, 1996). Given that academia encompasses complex, localized, and qualitative expert knowledge, scientometrics develops a standardized, numerical language that converts research into clear, comparable data. However, it depends on proprietary citation databases and high-

impact journal rankings, which restrict legitimate research by overlooking valuable non-Anglophone work and nuanced insights from the humanities (Mushagaluasa et al, 2024).

Among global university rankings, the most prominent are the QS, Times Higher Education (THE), and the Academic Ranking of World Universities (ARWU). Although widely recognized, these rankings often overlook smaller academic systems, including those in the Balkans (QS Quacquarelli Symonds, 2026; Times Higher Education, 2026; Shanghai Ranking Consultancy, 2025).

In response to this deficiency, a regional university ranking system emerged to better reflect regional realities. Introduced by Prof. Bojadziev in 2020, the Academic Ranking of Balkan Universities (ARBU) uses bibliometric data from Google Scholar to rank Balkan universities in their natural habitat.

Following the emergence of the ARBU ranking system, Bojadjiev, Krliu, Pavlova, and Mileva (2024) analyze the benefits of Google Scholar as a data source, emphasizing its ease of access and extensive coverage, which make it a strong alternative to traditional bibliometric databases such as Scopus or Web of Science, ensuring research outputs are readily shared and accessed. Unlike subscription-based platforms, Google Scholar provides broader access, helping institutions in developing academic settings increase their visibility and recognition. Google Scholar is an invaluable, free resource, but its automated web-crawling technology struggles with metadata standardization and record duplication (Kalyani A Sankpal, K V Metre 2020).

In their study 'Understanding university rankings and the need for Academic Ranking of Balkan Universities,' Bojadjiev, Mileva, Pavlova, and Krliu-Handjiski (2023) describe ARBU as a practical and regionally tailored ranking system. They contend that global metrics focusing on Nobel Prizes, endowments, or reputation surveys do not adequately reflect the realities of Balkan universities. ARBU's approach, which assesses total citations and citations per professor, offers a clear, measurable method for regional comparison.

In their latest publication, Bojadziev et al. (2026) directly apply the ARBU metrics to assess the positioning of the Macedonian higher education system within the regional context, following its unfortunate absence from the global university rankings, bringing interest to further explore the application of ARBU to similar-sized higher education systems from the Balkans, like that of Montenegro.

2.1 Quality Assessment of Higher Education: Who, What, and How?

The assessment of higher education quality generally relies on four core pillars:

1. **Institutional and program accreditation**, along with external reviews, are conducted by independent government bodies or nonprofit agencies that assess universities or specific degree programs to verify that they meet established academic standards. This process typically includes a detailed "Self-Evaluation Report" prepared by the university, followed by site visits from peer reviewers and external experts. Frameworks for these assessments are exemplified by guidelines from the European

Association for Quality Assurance in Higher Education and the UK's Quality Assurance Agency for Higher Education.

2. **Internal Quality Assurance (IQA)** involves ongoing monitoring by universities. They are responsible for tracking dropout and success rates on standardized exams, as well as the time it takes students to graduate. Most institutions conduct regular end-of-course surveys to gather students' feedback on teaching quality, course content, and academic support.
3. **Employability and learning outcomes:** The key measure of quality is whether graduates are ready for the workforce. Evaluators track employment rates and initial salaries, and they survey employers to assess whether the curriculum aligns with market demands. Rather than focusing solely on grades, specialized assessments directly evaluate skills such as critical thinking and problem-solving gained during the degree.
4. **University Rankings** evaluate quality by global benchmarking using quantitative metrics.

The methodological frameworks of the three most popular platforms show what indicators are used and how the points are distributed:

1. QS World University Rankings metrics (Current framework)
 - Research and Discovery (50%): Academic reputation (30%) based on a survey of tens of thousands of scholars worldwide who nominate the best institutions in their field, and citations per faculty (20%): Measures the total number of citations to a university's scientific papers in databases like Scopus, divided by the number of employees.
 - Employability and Outcome (20%), including Employer reputation (15%), based on a survey that asks global managers which universities produce the most capable and employable graduates and Employment outcomes (5%)
 - Learning experience (10%) based on a Faculty to student ratio (10%): Used as an indirect measure of commitment to teaching (fewer students per professor implies better quality).
 - Global Engagement (15%) and Sustainability (5%)
2. Times Higher Education (THE) metrics (WUR Framework uses 18 performance indicators grouped into 5 categories:
 - Research Quality (30%), which covers citation impact, research strengths, research excellence, and research impact;
 - Teaching/School Environment (29.5%), measuring teaching reputation, staff-student ratio, and the ratio of PhDs to undergraduates;

- Research Environment (29%), assessing research output, research income, and reputation as a research center;
 - International Outlook (7.5%), focused on attracting international staff, students, and international collaborations; and
 - Industry (4%), which focuses on knowledge transfer through business sector collaboration income and patents.
3. ARWU uses the following parameters to evaluate higher education institutions:
- Quality of Education (10%) measures the number of alumni who have won a Nobel Prize or the Fields Medal, weighted by how recently they graduated.
 - Quality of Teaching Staff (40%) Counts professors and researchers who are Nobel or Fields Medal winners, and the number of scientists on Clarivate Analytics' top cited list.
 - Scientific research paper (40%), including Papers in Nature and Science (20%) as total articles published in these journals in the last five years; not counted for social sciences and humanities, with weight transferred and Indexed papers (20%) as the number of papers published in SCIE and SSCI databases in the previous year.
 - Academic Performance Per Capita (10%) or Productivity Per Employee is the ratio of the total weight of previous indicators divided by full-time tenured professors and academic staff,

The final ranking is calculated by first identifying the top university for each of the six indicators and awarding it 100 points; other universities receive points in proportion to their scores. These normalized scores are then weighted by the specified percentages and summed to produce a total score. The university with the highest total score is assigned 100 points, and others are ranked as percentages of that score.

Main criticisms of rankings include bias in research assessment that favors publications over teaching, language bias favoring Anglo-Saxon institutions due to databases like Scopus and Web of Science, and subjective reputation surveys from QS and THE that rely on biases rather than progress. Metrics like research revenue and faculty-student ratios favor wealthy universities, perpetuating the 'rich get richer' cycle (Conrath-Hargreaves, 2026).

a) Balkan universities in the international ranking lists

Balkan universities generally hold modest to weak positions in global rankings such as the ARWU Shanghai, QS, and Times Higher Education. Only a few exceptions rank among the top 500-1000 universities worldwide. Most Balkan higher education institutions are ranked below 1000 or do not appear in major global lists.

Serbia aims to lead in the Western Balkans. The University of Belgrade, among the most prominent in the former Yugoslavia, typically ranks between 400 and 500 in the Shanghai Ranking. In the latest Times Higher Education (THE) rankings, it ranks 1001–1200. The

University of Novi Sad follows, ranked 1201–1400 on the QS list.

The University of Ljubljana (**Slovenia**) and the University of Zagreb (**Croatia**) have relatively stable positions in the 500–800 range in most global rankings.

The oldest and largest university, the University of Sts. Cyril and Methodius (UKIM) in Skopje, **North Macedonia**, fails to make the Shanghai ranking. The University of Tirana in **Albania** and the University of Pristina in **Kosovo** suffer a similar fate - they face low global rankings, positioned far below the top 1500 universities, mainly due to the minimal international visibility of their scientific works.

The inclusion of **Montenegro** in the statistics for the four neighboring Balkan countries (North Macedonia, Kosovo, and Albania) shows that it shares the same difficult reality, but with one key difference: the University of Montenegro (UCG) manages to appear on more official global lists than institutions in Albania and Kosovo, positioning itself very close to the Macedonian UKIM.

Due to the tendency of global rankings to overlook regional nuances, a regional project named ARBU was recently created. This platform exclusively assesses professors and faculties in the Balkans using total citations from Google Scholar, aiming to provide a more accurate reflection of academic performance in these areas and to encourage regional collaboration.

2.2 The Emergence of ARBU – Academic Ranking of Balkan Universities

The Academic Ranking of Balkan Universities (ARBU) combines its proprietary system with data from Google Scholar rankings. More information is available in the studies “The Advantages of Google Scholar Rankings” and “Understanding University Rankings and the Need for an Academic Ranking of Balkan Universities.”

The Academic Ranking of Balkan Universities (ARBU) serves as a tool for all institutions across the Balkans, including North Macedonia, Serbia, Croatia, Slovenia, Bosnia and Herzegovina, Albania, Montenegro, and Kosovo. While the “Big Three” rankings adopt a multidimensional approach, ARBU relies solely on citation metrics from Google Scholar, which are considered most responsive to research visibility and impact (Bojadziev, 2020; Bojadziev et al., 2023). This focus on citation data also ensures that ARBU remains transparent and comparable in regions where bibliometric data is limited, and provides a credible means to assess research performance within developing academic systems.

ARBU holds considerable importance for higher education systems in North Macedonia, Montenegro, Kosovo, Albania, and Bosnia and Herzegovina. Since their universities do not appear in major global rankings, their current status can only be reasonably evaluated through regional comparisons.

Therefore, utilizing ARBU to analyze Montenegrin higher education allows for an assessment of:

- a) its anticipated position in 2026, and
- b) the systemic obstacles and potential opportunities for reform.

However, it is essential to recognize that university rankings, whether global or regional, offer a narrow perspective of a university. They mainly focus on research output and productivity, often overlooking the quality of teaching, graduate employability, and societal contributions (Hazelkorn, 2015; Salmi, 2009). Nonetheless, as previously mentioned, rankings serve as a significant evaluative tool that reflects institutional performance and can stimulate systemic policy reforms.

This paper argues that rankings serve both as reflections of and as drivers of change. Through a comparative analysis of global rankings and the simplified ARBU framework, it aims to highlight the position of Montenegrin higher education from a regional perspective.

3. Methodology

3.1 Data Sources

This study's primary data source is Google Scholar, which provides extensive coverage of academic publications and citations. It was selected because it encompasses a broader scope of regional research output than databases such as Scopus or Web of Science, which tend to underrepresent smaller or emerging academic systems. Data from Google Scholar were incorporated into the Academic Ranking of Balkan Universities (ARBU), a ranking system designed to assess universities in the Balkan region (Bojadziev, 2020). To provide comparative insights, additional references were drawn from major international rankings, including the QS World University Rankings, the Times Higher Education (THE) World University Rankings, and the Academic Ranking of World Universities (ARWU) (QS Quacquarelli Symonds, 2026; Times Higher Education, 2026; Shanghai Ranking Consultancy, 2025).

The ARBU methodology evaluates three key indicators:

1. Total citations, reflecting overall research impact.
2. Citations per professor, a normalized measure of research efficiency and productivity.
3. The total number of professors, representing the institution's size baseline.

By integrating absolute and relative metrics, the approach ensures that both scale (overall impact) and efficiency (impact per employee) are included in the analysis.

3.2 Analytical Approach

The analysis was carried out through several step-by-step stages, ensuring each part was carefully considered.

1. Regional benchmarking involved the evaluation of universities from several Balkan countries similar in size (North Macedonia, Bosnia and Herzegovina, Kosovo) to establish their relative standing concerning research output.
2. Montenegrin universities were ranked within the country based on ARBU indicators, helping us identify the leading institutions and those that may need more support.

3. The data was carefully organized into different academic fields - such as Medical Sciences, Natural Sciences, Engineering, Agriculture, Humanities, Social Sciences, and Economics/Business - to clearly highlight the unique strengths and areas for improvement within each sector.

4. The evaluation of individual researchers highlighted the top 25 Montenegrin scholars, ranking them based on their citation counts and contributions to their fields. This ranking was then compared with leading researchers across the Balkan region, providing a broader perspective on their impact and achievements.

3.3 Limitations

While relying solely on bibliometric indicators boosts objectivity, transparency, and reproducibility, ARBU also has limitations. The model does not assess key aspects such as the quality of International Research in Education, student satisfaction, graduate employability, or broader societal impact, all of which are crucial to university performance. Additionally, citation behaviors vary across disciplines, potentially favoring fields with higher publication and citation rates, such as Medical Sciences and Engineering, over others. Despite these drawbacks, the methodology offers a credible, measurable, and comparable assessment of institutional research activity, providing a solid basis for policy changes and institutional development.

4. Results

Montenegro's higher education system is quite compact. According to the national quality assurance agency (Agency for Control and Quality Assurance of Higher Education (ACQAHE)), there are only 10 licensed higher education institutions in the country – 4 universities and 6 independent faculties. Total enrollment in 2024/2025 is 20.361 students, and roughly two-thirds (66%) are enrolled at the University of Montenegro. The same institution delivers about 60% of all study programs nationally.

4.1 Efficiency of Montenegrin Universities from a National Perspective

Using the methodology and published outputs of the Academic Ranking of Balkan Universities (ARBU), Montenegro's higher education system appears to be small and highly concentrated, with institutional scale, research productivity, and accreditation structures tightly interconnected.

That concentration matters for ARBU outcomes. Since ARBU aggregates the research profiles of affiliated academics, a system dominated by a single institution naturally produces a winner-take-all ranking structure.

Table 1. Efficiency of Montenegrin Universities

Rank	University	No. of Professors	Total Citations	Rank Coefficient
1	University of Montenegro	593	336243	567.02
2	University of Donja Gorica	106	18398	173.57
3	Montenegrin Academy of Sciences and Arts	5	17813	3562.60
4	Mediterranean University	9	1299	144.33

ARBU primarily ranks institutions based on the aggregated research profiles of affiliated faculty members, such as professors, researchers, assistants, and doctoral students, rather than assessing teaching quality, employability, or student satisfaction. This means an ARBU-based analysis is fundamentally an assessment of research capacity and academic visibility, not the sector's overall educational performance.

From ARBU's perspective, Montenegro shows two main structural characteristics:

1. **Institutional concentration.** Because ARBU rankings are cumulative across faculty profiles, institutions with more departments and researchers gain a statistical advantage. With 18 faculties, an art academy, and an interdisciplinary institute, the University of Montenegro is structurally positioned to dominate national research rankings. Smaller private institutions are unlikely to match the aggregate output, even if some individual scholars perform strongly.
2. **Limited system scale but relatively high program density.** Montenegro has 287 study programs for roughly 20000 students in higher education. This creates a fragmented program landscape relative to system size. From an ARBU perspective, fragmentation can dilute research specialization because faculty resources may be spread across many programs rather than concentrated into research-intensive clusters.

4.2 Efficiency of Montenegrin Universities from a Regional Perspective

In comparative Balkan terms, Montenegro's higher education system looks less like a competitive multi-university ecosystem and more like a hub-and-spoke model, in which one flagship institution anchors nearly all national research prestige, while smaller institutions operate in niche or teaching-oriented roles.

Using ARBU's citation methodology, the most meaningful comparison for Montenegro is not with larger systems such as Serbia or Croatia but with other smaller Balkan systems, especially North Macedonia, Bosnia and Herzegovina, and Kosovo.

A comparison with peer systems shows clear structural differences:

Table 2. Comparative overview of Montenegrin higher education peer systems

Dimension	Montenegro	North Macedonia	BAH	Kosovo
Population	≈620k	≈1.8M	≈3.1M	≈1.6M
System shape	One dominant flagship	One dominant flagship+ competitive privates	Fragmented multi center	Emerging flagship model
ARBU citation concentration	Very high	High	Medium	High
Internal competition	Low	Medium-high	High	Low-medium

What makes Montenegro interesting is that it is the smallest fully consolidated system among its peers. Its research ecosystem is almost entirely centered on the University of Montenegro, which dominates enrollment, programs, and faculty size. Under ARBU rules, this creates a strong “citation concentration effect”.

Using the ARBU data to compare the efficiency of the flagship academic institutions of each of these countries, we receive the following results:

Table 3. Efficiency of peer flagship academic institutions in the region

Country	Flagship university	No of professors	Total citations	Rank Coefficient
North Macedonia	University Ss. Cyril and Methodius (UKIM)	1000	396,854	397
BAH	University of Sarajevo	2002	492,884	246
Kosovo	University of Pristina – Hasan Prishtina	902	341,062	378
Montenegro	University of Montenegro	593	336,243	567

The received ARBU results show that the University of Montenegro and UKIM have very similar total citation counts but differ greatly in scale and efficiency: UKIM has 396,854 citations and 1000 professors, while the University of Montenegro has nearly the same output of 336,243 citations with only 593 professors. This means UKIM’s citations per professor are far lower than the University of Montenegro, which has a higher average impact.

A similar situation is visible when compared with the other peer flagship universities:

- The University of Pristina (902 professors) has 52.1% more staff than Montenegro, and only 1.4% (341,062 citations) more total citations than Montenegro.

- The University of Sarajevo (2002 professors) has 237% more professors than the University of Montenegro (593 professors), yet it generates only 46.6% more citations than Montenegro.
- The University of Montenegro (567 citations/professor) is the absolute leader - its professors are as much as 130.5% more effective (more than double) compared to professors in Sarajevo.

4.3 Montenegrin Universities' Ranking by Academic Field

The following section outlines how universities in Montenegro perform across different academic fields:

1. Medical Sciences

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	71	56249
2	University of Donja Gorica	2	3476

2. Natural Sciences

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	89	104166
2	Montenegrin Academy of Sciences and Arts	4	14683
3	University of Donja Gorica	7	989

3. Humanities and Arts

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	112	47291
2	Montenegrin Academy of Sciences and Arts	1	3130
3	University of Donja Gorica	22	653

4. Social Sciences

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	49	22598

2	University of Donja Gorica	17	2516
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5. Agriculture and Forestry

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	16	10396

6. Engineering

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	167	73787
2	University of Donja Gorica	31	9345
3	Mediterranean University	4	587

7. Economy, Business, and Organizational Sciences

Rank	University	No. of Professors	Total Citations
1	University of Montenegro	49	12852
2	University of Donja Gorica	24	1396
3	Mediterranean University	3	675

The ARBU data on university performance across different academic fields show the following picture:

- The University of Montenegro, the driving force behind Montenegro's success and the most efficient in the Balkans, mainly excels in Natural Sciences (1,170 citations per professor) and Medical Sciences (792 citations per professor).
- The University of Donja Gorica achieves outstanding results in the medical field, with only 2 professors and an average rating that is 119% higher than the national average, reflecting several prominent researchers. In other scientific disciplines, the university's averages are quite low: Social Sciences (148), Business (58), and Humanities (30). This suggests that, although it employs staff, the university's main focus is not on producing internationally recognized research.

4.4 Dominant Scientific Fields

An analysis of the research areas shows that no single scientific field dominates completely; instead, the Natural Sciences lead, comprising approximately 36.86% of all citations.

Table 4. Structure of Research Output by Field

Field	Citations	% of Total
Medical Sciences	50982	16.36
Engineering & Technology	51224	16.44
Economics, Business and Organizational Science	7742	2.48
Social Sciences	21699	6.96
Natural Sciences	114867	36.86
Agriculture and forestry	5962	1.91
Humanities and Arts	59192	18.99
Total	311670.9	100%

4.5 Results: Montenegrin Researchers

4.5.1 Researchers' Ranking in the National Context

The **leading 25 Montenegrin researchers** are presented in the following table:

Table 5. Leading Montenegrin Researchers

Rank	Professor Name	University	Field of Interest	Citations points
1	Natasa Raicevic	University of Montenegro	Natural Sciences	100
2	Dusko Bjelica	University of Montenegro	Humanities and Arts	78.06
3	Aneta Boskovic	University of Montenegro	Medical Sciences	77.96
4	Stevo Popovic	University of Montenegro	Social Sciences	39.49
5	Ljubisa Stankovic	University of Montenegro	Engineering and Technology	32.57
6	Gordana Lastovicka-Medin	University of Montenegro	Natural Sciences	26.36
7	S Backovic	Montenegrin Academy of Sciences and Arts	Natural Sciences	22.96

8	Ivana Picuric	University of Montenegro	Natural Sciences	21.98
9	Vladimir Pešic	University of Montenegro	Natural Sciences	19.08
10	Igor Djurovic	University of Montenegro	Engineering and Technology	18.3
11	Srdjan Stankovic	University of Montenegro	Engineering and Technology	14.46
12	Gordan Karaman	Montenegrin Academy of Sciences and Arts	Natural Sciences	12.47
13	Velibor Spalevic	University of Montenegro	Agriculture and forestry	10.85
14	Jovan Gardasevic	University of Montenegro	Humanities and Arts	10.6
15	Srdjan Krco	University of Donja Gorica	Engineering and Technology	10.2
16	Miloš Dakovic	University of Montenegro	Engineering and Technology	9.16
17	Irena Orovic	University of Montenegro	Engineering and Technology	8.53
18	Gordana Mijovic	University of Montenegro	Medical Sciences	8.08
19	Zoran Stojanovic	Montenegrin Academy of Sciences and Arts	Humanities and Arts	7.88
20	Sanja Pekovic	University of Montenegro	Uncategorized	7.47
21	Lejla Gurbeta Pokvic	University of Donja Gorica	Medical Sciences	6.74
22	Boban Melovic	University of Montenegro	Economics, Business and Organizational Science	6.62
23	Danijela Steševic	University of Montenegro	Natural Sciences	6.19
24	Ivan Vasiljevic	University of Montenegro	Humanities and Arts	5.79
25	Bojan Masanovic	University of Montenegro	Humanities and Arts	5.39

4.5.2 Institutional Contribution of the Researchers

Out of the **top 25 Montenegrin researchers**, the University of Montenegro **accounts for 20 professors, producing 89.3% of the total research output**. The other key institutions are the Montenegrin Academy of Sciences and Arts and the Montenegrin Academy of Sciences

Table 6. Institutional Contribution of Top 25 Researchers

University	Citations	Participation	Professors
University of Montenegro	278563	89.3	20
University of Donja Gorica	9308.53	2.9	2
Montenegrin Academy of Sciences and Arts	23798.7	7.6	3
Total	311670.9	100%	25

4.5.3 Montenegrin Researchers in the Regional Context

According to the current ARBU data, Montenegro has no researcher in the TOP 25 in the Balkans.

The highest-ranked Montenegrin researcher currently listed is:

- Natasa Raicevic – ranked #34 overall in the Balkans, with 15.22 citation points in ARBU's normalized scoring system.

The next Montenegrin researchers are:

- Dusko Bjelica – ranked #42 with 11.88 points
- Aneta Boskovic – ranked #43 with 11.86 points

Table 7. Top 25 Researchers in the region (Ex-Yugoslavia + Albania)

#	Professor Name	University	Field of Interest	Citation Points	Citations
1	Marko Mikuz	Jožef Stefan Institute	Natural Sciences	100	289674
2	Ivica Puljak	University of Split – Croatia	Engineering & Technology	91.92	266,268
3	Nikola Godinovic	University of Split – Croatia	Engineering & Technology	90.03	260,794

4	Marko Kovac	University of Split – Croatia	Natural Sciences	73.62	213,258
5	Mihajlo Jakovljevic, MD, Ph.D., MAE	University of Kragujevac	Economics	53.51	155,005
6	Gani Bajraktari	University of Pristina	Medical Sciences	44.90	130,064
7	Petar Seferovic	University of Belgrade – Serbia	Medical Sciences	44.37	128,528
8	Tomislav Ševa	University of Zagreb – Croatia	Natural Sciences	42.30	122,532
9	Željko Reiner	University of Zagreb – Croatia	Medical Sciences	39.93	115,667
10	Ozren Polašek	University of Split – Croatia	Medical Sciences	39.15	113,407
11	Mirko Planinic	University of Zagreb – Croatia	Natural Sciences	39.05	113,118
12	Shpëtim Hasallari	University of Applied Sciences, Ferizaj	Economics	32.70	94,723
13	Mile Dželalija	University of Split – Croatia	Natural Sciences	32.05	92,841
14	Toni Šćulac	University of Split – Croatia	Natural Sciences	31.54	91,363
15	Samo Stanic	University of Nova Gorica	Natural Sciences	30.14	87,308
16	Sven Gotovac	University of Split – Croatia	Engineering & Technology	29.14	84,411
17	Nikola Poljak	University of Zagreb – Croatia	Natural Sciences	28.55	82,702
18	Linda Vicković	University of Split – Croatia	Engineering & Technology	26.80	77,633

19	Milena Ilić	University of Medical Sciences Kragujevac	26.29	76,155
20	Olja Đorđić	University of Banja Luka Natural Sciences	25.50	73,867
21	Mario Šekerija	University of Zagreb – Croatia Medical Sciences	24.51	70,999
22	Silva Tafaj	University of Medicine of Tirana Medical Sciences	23.13	67,002
23	Eleonora Dubljanin	University of Belgrade – Serbia Medical Sciences	22.67	65,669
24	Irena M. Ilić	University of Belgrade – Serbia Medical Sciences	21.51	62,309
25	Danilo Zavrtanik	University of Nova Gorica Natural Sciences	20.73	60,049

Although Montenegro is highly cited at the institutional level, it has not yet reached that tier among the top 25 Balkan scholars. Instead, it has one in the TOP 35 and three in the TOP 50, which is significant given Montenegro's size. In comparison, North Macedonia's leading researcher is at #38 (Sasko Kedev), meaning Montenegro's top researcher currently ranks higher than North Macedonia's top individual in ARBU.

The following list presents the structure of researchers by country:

Table 8. Structure of researchers by country

Croatia	Serbia	Slovenia	Kosovo	Albania	Bosnia
13	5	3	2	1	1
52%	20%	12%	8%	4%	4%

6. Conclusions

The study uses a newly developed ranking model, ARBU, to evaluate the academic performance of Balkan universities, employing a simple, one-dimensional approach focused on research outputs and Google Scholar citations, thereby making the assessment clear and accessible.

The findings of this study present the structure and performance of Montenegrin higher education in 2025 from a regional and research-output perspective, revealing several important patterns.

ARBU's data suggests that Montenegro has a higher education system with:

- One clear research flagship - the **University of Montenegro**
- Two smaller private institutions (**University of Donja Gorica (UDG)** and **Mediterranean University**) with more limited aggregate research visibility
- Research output concentrated in disciplines where publication and citation cultures are stronger (medicine, engineering, natural sciences)

The **main strengths** of the Montenegrin higher education system, visible through ARBU data are:

- Strong national research concentration, which can improve international visibility:
 - The University of Montenegro, with 553 out of a total 713 professors, holds 336,243 of the total 373,753 citations on a national level, with a rank coefficient of 567.02
- High average impact compared with peer regional flagship universities:
 - The University of Montenegro (567 citations/professor) is the absolute leader - its professors are as much as 130.5% more effective (compared to professors of Sarajevo University,
 - The University of Pristina (902 professors) has 52.1% more staff than Montenegro, and only 1.4% (341,062 citations) more total citations than Montenegro.
 - The University of Sarajevo (2002 professors) has 237% more professors than the University of Montenegro (593 professors), yet it generates only 46.6% more citations than Montenegro
- High citation efficiency per professor:
 - The University of Montenegro mainly excels in Natural Sciences (1,170 citations per professor) and Medical Sciences (792 citations per professor).
 - The University of Donja Gorica achieves outstanding results in the medical field, with only 2 professors and an average rating that is 119% higher than the national average, reflecting several prominent researchers.

The main vulnerabilities are:

Dependence on a single dominant university (University of Montenegro) for national research performance

- Small faculty pools in private institutions, limiting ranking competitiveness
- Although Montenegro is highly cited at the institutional level, it has not yet reached among the top 25 Balkan scholars. Instead, it has one in the TOP 35 and three in the TOP 50

In summary, this paper offers a practical situational analysis of Montenegrin universities and

their affiliated researchers from a regional perspective, serving as a basis to guide the further development of Montenegro's higher education system.

The paper relies exclusively on bibliometric indicators, which enhances objectivity, transparency, and reproducibility, but also has some **limitations**. It doesn't evaluate factors such as the quality of International Research in Education, student satisfaction, graduate employability, or broader societal impact—all of which are essential to university success.

Future research could expand this bibliometric analysis in several ways. First, extending the analysis over a longer period would reveal how the research output and international stature of higher education institutions have changed over time. This would help distinguish temporary fluctuations in publication and citation rates from more enduring changes in higher education systems. Second, future studies might explore the relationship between bibliometric performance and institutional characteristics. For example, analyzing bibliometric indicators alongside variables such as institutional size, funding, academic staffing, doctoral programs, and research infrastructure could yield deeper insights. Such an approach would go beyond simply ranking institutions and help explain the reasons behind variations in research performance.

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