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Are Spatial Planning Schools across Europe Teaching Climate Change? A Survey of Curricula in the European Context

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Abstract

It is important that the current and the next generations of planners are well equipped to contribute to the realization and upscaling of effective climate change action as a central element in any urban or spatial planning educational program. Framing the issue in the European context, and building on studies of other global regions, this research is the first European-wide scale survey to look at the extent to which European planning schools are addressing climate change in their curricula. The findings highlight the need for more comprehensive education on this critical issue and that further research and resources are needed to enhance climate resilience education in planning.

Keywords

planning, climate change, education, curricula, Europe

Introduction

Climate change is one of the main threats of the current twenty-first century, and both mitigation and adaptation are equally fundamental. It is evident the way nations and their communities spatially develop and use resources, like land, water, fossil fuels, or natural ecosystems, will have profound effects on future climate conditions, from global to local scales (IPCC 2022). Climate change-related hazards have many direct and indirect effects on societies and ecosystems, leading to increased morbidity and mortality rates, and these may also interact with other hazards creating highly complex multihazard disasters, climate driven population displacement and migration, the disruption and collapse of vital ecosystems and food supply systems. Therefore, it is important that the current and the next generations of planners are well equipped to contribute to the realization and upscaling of effective climate change mitigation and adaptation measures as a central element in any spatial development program.

While the responsibility for responding to such climate challenges cannot be laid solely at the feet of spatial planners, together with other professions and societal actors, they can and should contribute to the development of acceptable responses and increasing societal and community resilience through spatial planning and design processes (Bulkeley 2021; Molthan-Hill et al. 2019; Stiftel et al. 2009). This, therefore, raises several questions for spatial planning education. For example: What should spatial planners know about climate change? How can the issues related to climate change be addressed with spatial planning education and at what levels? Should climate action and climate resilience be core competences within planning curricula?

Considering the importance now attributed to climate change and climate action in the European Union (see for instance the European Green Deal[1]) it is important to investigate and understand to what extent Europe's planning schools are addressing climate change in their curricula and how they are doing so. The aim of this research and paper is,

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therefore, to explore how prevalent the topics related to climate change are in the curricula of planning schools across European countries. This study should be seen as one of several contributions to a global body of knowledge on the contribution that spatial planning education can have in building climate resilience locally and globally. Educating planners on climate change is also gaining attention in Australia (Hurlimann et al. 2021) and the United States (Hamin and Marcucci 2013; Infield et al. 2023, 2025) and other world regions. In the literature review section we review these, and other recently published studies and events related to planning education. Then, the following two sections present the methodology and results of our study looking at the extent to which climate change is being integrated into urban planning education across planning schools in Europe, focusing on schools that are members of the Association of European Schools of Planning (AESOP). The study focuses only on schools that we found have some climate change content in their programs, excluding those that do not address climate change at all. We pose the following questions:

1. For schools that are addressing climate change, how much is climate change integrated into the urban planning *programs*, considering both undergraduate and graduate curricula?
2. How much is climate change integrated into the urban planning programs' *courses*, considering both core and elective courses?

The methodology is desk-based, drawing on information available online about planning programs. Finally, the last section provides a discussion of the issues this study raises, what results mean for planning schools and outlines future areas of research.

Literature Review

About ten to fifteen years ago, research started to emerge which assessed the extent to which climate change was being integrated into curricula (Filho 2010) and more specifically, how it should fit particularly into planning curricula (Davidson and Lyth 2012; Majid et al. 2011). It was clear from two in-depth studies on planning education in Australia (Hurlimann 2009) and North America (Hamin and Marcucci 2013), that at the time that climate change education was yet to permeate into planning curricula. These studies raised several related issues.

First, the issue of whether climate change should be addressed via stand-alone courses, or whether it should be mainstreamed into existing courses. The studies put forward the idea that addressing climate change in planning curricula is not optional, but rather it is an essential duty of the profession and therefore optional courses on climate change would be welcomed, but what would be more relevant was if core courses covered the issues of climate change. Hamin and Marcucci (2013) put forth the idea that in the United States, textbooks used in core planning curriculums need to include chapters that would lay out clear methods for how planners can identify climate information, such as how to map sea level rise, how to measure heat island effects, identifying vulnerable populations, and so on and also what are methods for integrating this information into land use plans, housing, and communications.

The research also discussed what would be the relevant subject areas and skills that planners should have to in order to address climate change (Davidson and Lyth 2012). Hurlimann (2009) looked at the issue from the larger perspective of environmental education for planners, through a survey of planning professionals in Australia, and found that climate change and water management were key issues that needed attention in curriculums, as well as the need for critical thinking that would enable planners to address all kinds of environmental issues. More recent studies point to the need for multidisciplinary teaching (Judge et al. 2020). Sliuzas (2021) emphasizes the connection between climate change and issues such as disasters, migration, sustainability and resilience should be emphasized in curricula so that the complexity of climate action is revealed and acknowledges the need to address equity and justice as these are high priority issues, especially for indigenous communities and highly vulnerable groups.

The need for adequate climate change education in planning and built environment curricula prompted the development of curricula by global organizations such as UN-Habitat (2015), who developed a course consisting of seven modules on key topics covering: theory and concepts of climate change, climate change adaptation and mitigation, planning for climate change, climate change and different sectors: urban water, urban energy, urban mobility, and shelter and housing.

Ten years on from these original studies, and what has been achieved? The area of research on integration of climate change into planning curricula is still very limited, however a few more studies have been conducted recently in these same countries as well across Southern contexts. At the same time, calls for academia to take more seriously the issue of integrating climate change into teaching and action are becoming ever greater (Infield et al. 2023; Lyles and Stevens 2019; Thierry et al. 2023).

Recent Studies in Northern contexts

There have been three recent studies, in Australia (Hurlimann 2021), the United Kingdom (Preston-Jones 2020) and the North America (United States and Canada) (Infield et al. 2025). The Australian and U.K. studies look at a subset of professionally accredited urban planning university degrees in their respective countries, and the research is based on published curriculum documents, rather than interviews with faculty, students or professionals. Both pieces of research set up an analytical framework for assessing the subjects that are

taught. Preston-Jones (2020) bases this on UN-Habitat's (2015) climate change curriculum and Hurlimann et al. (2021) develops a three-part framework: (a) explicit climate change issues, which is based on several key references; (b) sustainable urban forms, and (c) education for sustainability, which looks at professional competencies. The North American study, Infield et al. (2025) puts forward a six-layered perspective for climate change planning pedagogy that considers (a) basic science about emissions and impacts; (b) lenses for action such as justice, equity, vulnerability to hazards, co-benefits of action, hope, and emotions; (c) processes for planning such as governance, plan-making, and decision-theory; (d) analysis and projections for adaptation and mitigation; (e) planning solutions for adaptation and mitigation, and (f) local issues, such as informality, poverty, finance, migration, and public health.

The Australian study reveals that planning degree programs have not yet recognized the urgency and importance of addressing climate change; many of the subjects were only covered as elective courses and therefore climate change is still not well covered as a compulsory part of the planning programs (Hurlimann et al. 2021). She calls for reform to ensure urban planning graduates have sufficient knowledge of urban climate change challenges and recommends increasing the explicit coverage of climate change and sustainability issues in core subjects. She recognized that the methodology looked at published curriculum documents, which may mean that some of the issues are actually being covered in the curriculum but are not included in the documentation. She makes the point that clearly communicating what will be taught about climate change to prospective students therefore needs greater clarity in promotional materials. Hurlimann et al. (2021) raises the issue that professional accreditation is needed as a catalyst of curriculum invigoration, a point also made by Hamin and Marcucci (2013) and Frank (2021).

The United Kingdom study found similar results, concluding that there were deficiencies in the teaching of crucial aspects of climate change and that climate change knowledge was yet to sufficiently permeate urban planning education in the country (Preston-Jones 2020). The study only focused on core courses across accredited planning programs; elective modules were discounted from the analysis as the study was concerned with the level of climate change knowledge that all planning students will graduate with. The study found that a mean of 3.7% of climate change-related teaching was found across all the programs and that 40% of the programs did not contain any climate change related teaching as part of the core curriculum. In the fifteen courses that did have climate change, many of the topics defined by UN Habitat were not covered. The study called for further research to understand why these deficiencies exist and explore optimal methods for capacity-building in this subject area.

The North America study (Infield et al. 2025) is a follow-up to the one by Hamin and Marcucci (2013). It finds that major advances in teaching in this area have been made over the last ten years in Canada and the United States, suggesting that planning programs increasingly recognize climate change as a central topic in planning education. Most planning programs integrate climate change into pre-existing courses, some access other courses on-campus and some offer elective courses. Challenges remain in that well-resourced universities are more likely to teach about climate change, and the focus tends toward adaptation over mitigation. Since 2021, the Planning Accreditation Board requires climate change to be part of curricula.

Recent Studies across Southern Country-Contexts

For a long time, well beyond the end of the colonial period, both contents and programs of planning schools across Asia, Africa and Latin America have been largely influenced by European and American planning cultures (Faling 2011; Odendaal 2012). A decolonial and Southern perspective, aimed at producing graduates prepared to cope with the granularities of situated local contexts, characterized not only by more severe impacts of climate change and relevant vulnerabilities, but also by specific issues, such as large-scale informality and cognisant of globalized power structures is called for in planning schools in Southern contexts (Tironi et al. 2022; Watson 2009; Wesely and Allen 2019).

From Southern contexts, we have found three recent studies relevant for this research: a first one examines fifty-three urban planning programs across sub-Saharan Africa and South-East Asia, both at bachelor and master level (Scholz, Stober, and Sassen 2021); a second one focused on Indian urban planning schools' curricula (Roy, Kaliyath, and Ghosh 2022); and the third specifically referred to Southern Africa (Matamanda et al. 2022). These latter two offer a detailed analysis of a limited number of universities and programs. A relevant difference among these studies is related to the adopted methodology: while the first and the third are based exclusively on a content analysis of the curricula (Matamanda et al. 2022; Scholz, Stober, and Sassen 2021), the study of Indian Planning Schools combines content analysis with consultative meetings with deans, program coordinators and heads of departments of urban planning and other relevant departments in the three considered schools (Roy, Kaliyath, and Ghosh 2022). There are also studies which look at related topics, such as curricula on Disaster Resilient Infrastructure across Indian Universities (Nalla et al. 2023).

It is worth mentioning that despite the attention paid in Latin America to Education for Sustainable Development (ESD), we have not found systematic studies on the changes in planners' education related to sustainability, and specifically to climate change. However, numerous initiatives focused on ESD have been implemented at all levels of the school system, and an Environmental Education Resources Guide has been recently published by the UN Environment Program to support primary school teachers and environmental educators with reference

materials on the integration of environmental topics, including climate change, in educational programs (Wiedenbach 2020).

A similar situation has been noticed in China: even in this case indeed, both in primary and secondary schools, environmental topics are taught as part of a "green education" mandate, and e-learning courses for undergraduate students are available. However, no detailed studies related to the inclusion of climate issues in planning curricula are available, at least in international journals.

The main findings of the available studies emphasize that, despite a general recognition of the importance of mainstreaming climate change and disaster risk reduction in planning curricula, till now these topics seldom represent an essential part of planners' education. Even though elective courses or sectoral programs specifically devoted to climate change and disaster management have been introduced in a limited number of universities, most of the planning students still "lack a sound understanding of the consequences of their land-use plans" (p. 12, Scholz, Stober, and Sassen 2021).

Among the main obstacles in the mainstreaming of climate issues in planning curricula found across these studies in Southern contexts, is the lack of competences of teaching staff (Sliuzas 2021), the economic constraints limiting the capacity of providing specific programs for their training (Roy, Kaliyath, and Ghosh 2022), as well as the lack of specific requirements for planning programs to include climate issues (Matamanda et al. 2022).

Research Methodology: Surveying the European Planning Schools

Based on the literature review's findings and on the gaps identified, this research was set as the first attempt to frame the climate change integration into curricula in the European context. The aim was to understand which planning schools' programs across European countries are teaching content related to climate change and to estimate how much is being taught. The methodology for the survey was developed in conversation with the study of United States and Canada (Infield et al. 2025); the teams met virtually a few times in 2021, before data collection, to share strategies. In Europe, we focused on schools that are members of the AESOP, as listed on the AESOP website.[2] In total there are 162 planning schools in AESOP, which includes 123 Full Members, thirty-nine Associate Members. Planning programs across European countries are diverse in their focus and provision and located within diverse disciplinary faculties (Frank et al. 2014).

Data collection was conducted by members of AESOP's Young Academics (YA) network. This network is a branch of AESOP, consisting of doctoral students, postdoctoral fellows, and individuals beginning academic positions in the field of urban planning. The invitation to cooperate in this project to attract YAs was made through the AESOP YA Facebook, and the first meeting was held online with the participation of volunteers from AESOP member countries in June 2021. A total of twenty-nine researchers from different countries participated in collecting the data. This variety of candidates allowed for the review of educational programs in different languages.

Data collection took place between June and July of 2021 and a total of eighty universities were surveyed (see list in Supplementary Information). These eighty universities are located across twenty-six European countries—also including Türkiye (see Figure 1). We have collected data for just under half of the 162 planning schools in AESOP at the time, while the rest of the planning schools either did not indicate climate change-related curriculum, did not provide access to the programs' contents online, or could not be analyzed due to language constraints, which are explained in the "Limitations of the method" section.

For consistency, the terms "school," "program," and "course" were used in the research corresponding to the way the terms are largely used in the United States, even though the use of these terms differs widely across European countries. For this study, "school" denotes the department or faculty or unit within the university that offers undergraduate or graduate degree urban and regional planning programs (also called spatial planning or urban design programs in Europe). "Program" refers to the structured curriculum of individual courses or subjects that make up a degree. Course refers to a unit of study, with a specified number of credits, which is usually assessed through submission of an essay, coursework or an exam.

To collect the information, all the volunteers were provided with a guideline (see Supplementary Information for the instructions provided to the volunteers) to develop the different steps of the data collection. The methodology was based on using information from member schools that is publicly available on the internet, using keyword searches of course titles, course descriptions, reading lists or other relevant information available on the web. The range of information available from the member schools' website spanned from brief descriptions in the programs' websites to detailed information found in course outlines or syllabi. The keywords we included in our search were: "climate," "climate change," "climate risk," "climate crisis," "climate science," "climate policy," "global warming," "resilience," "adaptation," "mitigation," "nature-based solution," "green infrastructure," and "ecosystem service."

The tool used to collect and elaborate the information was a questionnaire-based internet platform, called Epicollect5.[3] This platform is valued for its low cost, time saving, and remote access (Filho 2010).

The surveyors were asked find planning programs for their assigned country that were listed in the AESOP members directory website. Within those programs, the surveyor was asked to find courses that have any of the keywords in their titles, descriptor, bibliography and/or syllabus. We did not include assessments in this analysis

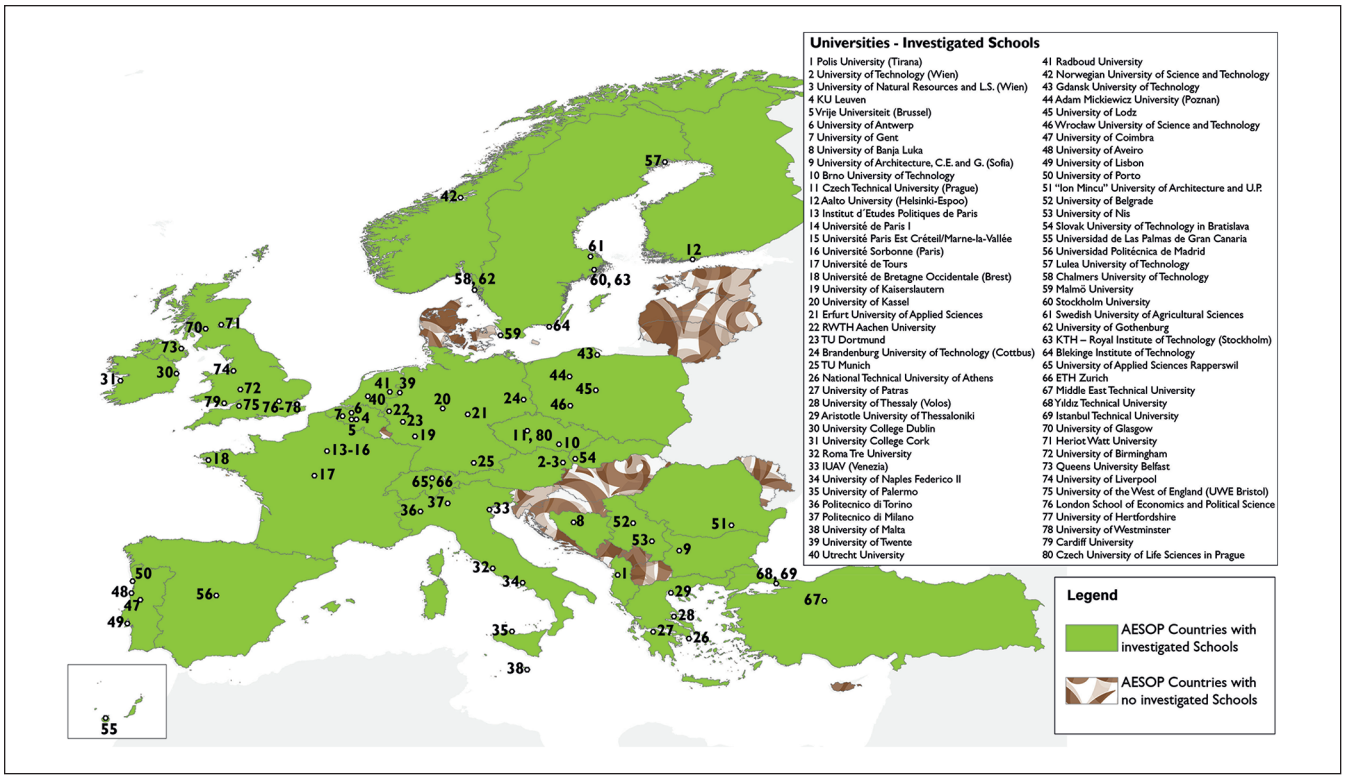

Figure 1. Map of the eighty universities included in the study (for the list of the universities see also Appendix).

because that information was generally not available online. Across the twenty-six countries and eighty universities, a total of 413 courses, across 143 programs were selected for further analysis of the contents as they had some content on climate change.

For each course that had any of the keywords, the surveyor was asked to create an entry, classifying the courses according to how much of it was about climate change (25% or less, 26%–50%, 51%–75%, 76%–99%, 100%). If the course had just one of the keywords in the title, then we implicitly assumed it was 100% about climate change. Occurrence of each keyword was recorded as "found" or "not found" in the database. In practice, for example, if a planning school curriculum had a course where four keywords were found in the descriptor, two keywords in the syllabus, and one keyword in bibliography, this would correspond to seven out of thirteen possible keywords in total, and this relates to the category 51% to 75%.

To calculate the percentage of credits on each program that are about climate change, we found the total number of credits per course dedicated to climate change (i.e. the percentage of keywords present in a course's syllabus, descriptor, or bibliography, based on the estimation of the volunteer, then multiplied for the amount of the course's credits), and divided this per the total amount of the programs' credits. It is acknowledged that this approach may embed certain limitations, which are explained in the next dedicated section.

Limitations of the Method

Some countries were not included due to language constraints. There are twenty-nine languages across AESOP planning schools. The group of volunteers from the YA network provided a wide spectrum of languages, that is, English, French, Spanish, Portuguese, Italian, German, Dutch, Norwegian, Swedish, Finnish, Polish, Czech, Slovakian, Serbian, Turkish, Greek, Romanian, Bulgarian, and Albanian. However, the group lacked understanding of some languages, such as Danish, Slovenian, Croatian, Hungarian, Estonian, and Latvian.

A decision to focus on schools that have been addressing the climate change issue, rather than those that had not, led the team to screen out programs that did not have any climate change content. During the first stage of data collection, a total of 161 programs with 527 course entries were collected from the planning schools of the twenty-six Countries investigated. These entries were preliminarily screened to detect courses with climate change-related content or general information on a program without climate change content. Hence, programs that did not provide any data on their curricula or did not contain any climate change-related content in their curricula were then excluded *a priori* from the analysis (a total of 114 courses across eighteen programs were thus removed, leaving 413 courses, across 143 programs to be analyzed). The reason for this was that the main aim of the

Table 1. Key Data of the Surveyed Programs by Country.

Country	Number of programs surveyed	% of average credits on climate change
Netherlands	4	6.6
Ireland	5	3.0
Sweden	18	2.7
Italy	10	2.6
France	10	2.4
Bosnia & Herzegovina	2	1.6
Germany	10	1.6
Greece	8	1.5
United Kingdom (England, Scotland, and Wales only)	19	1.5
Austria	4	1.1
Belgium	6	1.1
Finland	2	1.1
Albania	5	0.8
Norway	1	0.8
Spain	2	0.8
Bulgaria	5	0.7
Poland	5	0.7
Slovakia	2	0.7
Switzerland	3	0.7
Malta	1	0.6
Portugal	4	0.6
Türkiye	7	0.4
Serbia	5	0.3
Czech Republic	4	0.2
Romania	1	0.1
Total	143	

research was to look at schools that have been addressing climate change and to estimate the extent to which it is part of their curriculum.

The surveyors were asked to give their estimate of how much climate change content was included within a given course (25% or less, 26%–50%, 51%–75%, 76%–99%, 100%). This approach has limitations in that estimates under 100% might not be calibrated the same due to the large number of different volunteers who collected the data. Also, the estimates were not based on equal amounts of data, as the amount of available information was not the same for all entries (i.e. ranging from detailed syllabi, descriptors, and bibliographies to only titles for some).

How Prevalent Is Climate change in Planning Programs across European countries?

Measuring Climate Change Content in Urban Planning Programs

As shown in Table 1, out of the 143 programs with climate change content, we found that overall, there is a very little amount of a given program that is dedicated to teaching about climate change. So as not to single out any school, we have calculated this across countries. The results varied across countries, and not all schools in a given country have been surveyed, but on average the content about climate change represents a mere 1.5% of the average of total credits per program. Some countries appear to have higher amounts for example, The Netherlands is an outlier, having 6.6% of credits related to climate change.

Table 2. Estimated Percentage of Climate Change Contents per Surveyed Course.

Categories of % of climate change contents	Number of courses	% of total number of courses
25% or less	231	56
26%–50%	109	26
51%–75%	27	7
76%–99%	7	2
100%[a]	39	9
Total courses	413	100

[a]Course with the title containing at least one of the keywords embedding climate change concerns.

Measuring Climate Change Content in Urban Planning Courses

Next, we analyzed the *courses* that make up the programs, to understand *how much of a given course is about climate change*. In total we analyzed 413 courses, all of which had some climate change content (see Table 2). From this we found that thirty-nine (9%) of these courses have climate change in the title, so as explained in the methodology section, we assumed that 100% of the course is about climate change. We found that 231 courses, or just over half, have 25% or less of the content dedicated to climate change. A further 109 courses have between 25% and 50% of the content dedicated to climate change.

What this tells us is that there are few courses within planning programs that are completely dedicated to climate change, and that most of the programs are having courses that are partly dedicated to climate change, integrated with other topics.

Measuring Climate Change Content in Undergraduate Versus Graduate Programs

If we separate out the graduate and undergraduate courses, we find that slightly more climate change content per course at the graduate level, although both are still quite low.

Out of 143 programs surveyed, forty-five are undergraduate programs and ninty-eight are graduate programs (Table 3 and Figure 2). We found that there was a slightly higher percentage of credits dedicated to climate change within graduate program (1.71%) than within undergraduate programs (1.1%). However, both percentages are very low (1.41%).

Table 3. climate Change Contents per Undergraduate and Graduate Courses.

	No of programs surveyed	% of average credits on climate change, per program
Undergraduate	45	1.1
Graduate	98	1.71
Both types of programs combined	143	1.41

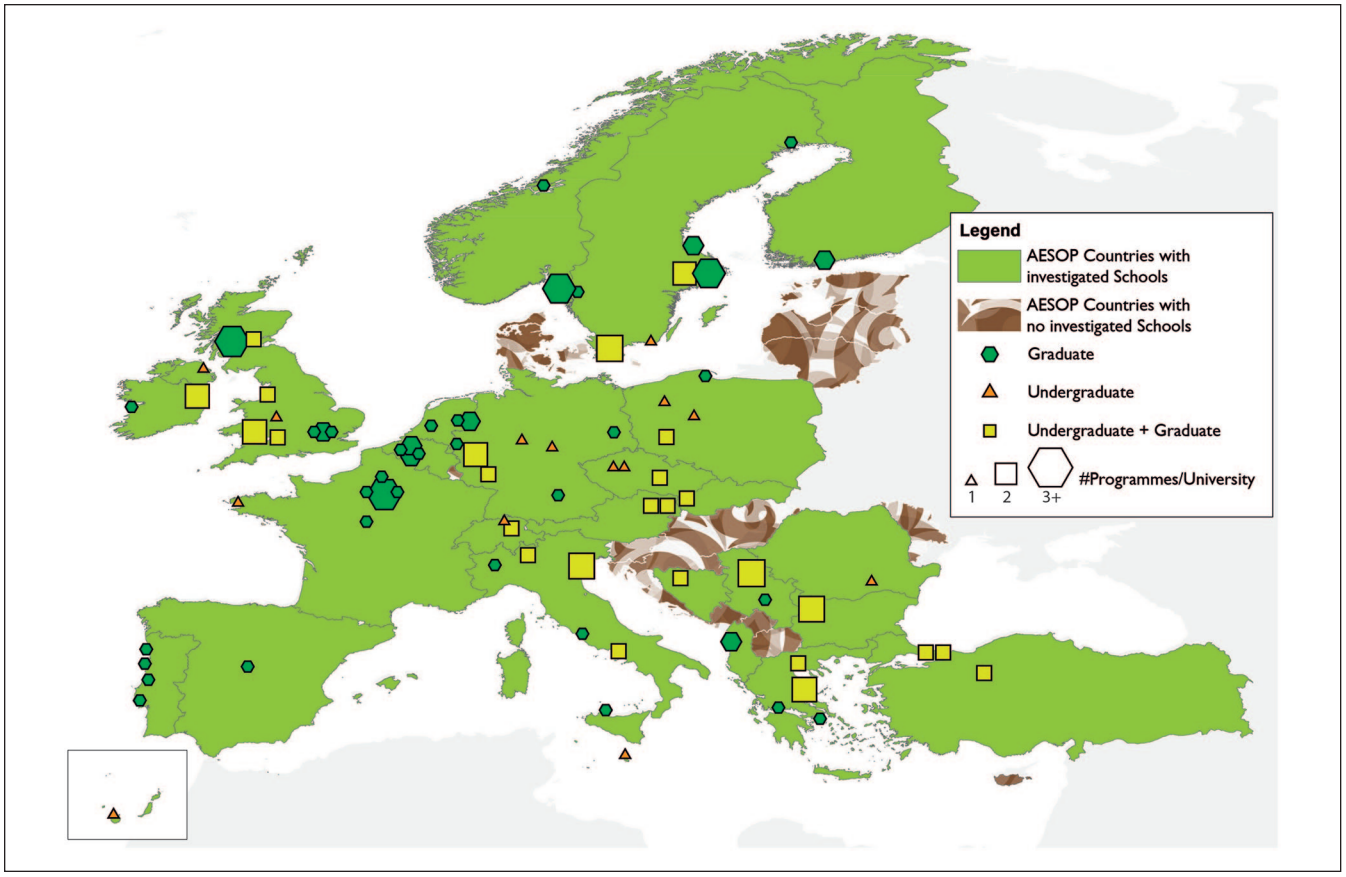

Figure 2. Climate change in undergraduate and graduate programs of urban planning.

Measuring Climate Change Content in Core Versus Elective Courses

As discussed in the literature review, it is important to understand if climate change is being taught in core courses of the planning programs, or only in elective courses. We found that out of 143 programs, ninty-two programs have climate change offered as part of the core courses in the program, this equates to 64% (see Table 4 and Figure 3). Thus, while there is only a small percentage of climate change content being taught in planning programs, more than half of the programs that are teaching on climate change are offering some content within the core courses. We found, however, that the majority of these programs (fifty-four out of ninety-two) are only offering climate change in one core course. The number of programs that appear to have climate change offered across three core courses is only sixteen, or 11% of the total of 143 programs. There are twenty-one programs that offer it across two core courses (15% of the total of 143 programs). Thus, climate change is not integrated widely across core courses of planning programs.

Of the surveyed schools with more concern about climate change in the core courses, the ones that stand out the most are Dublin (with more than ten core courses addressing climate change), Aalto, Sofia, IUAV University of Venice (Italy), Politecnico di Torino (Italy), University of Thessaly (Greece), University of Thessaloniki (Greece), University of Aveiro (Portugal), Erfurt University of Applied Sciences (Germany), as shown in Figure 3.

Table 4. Climate Change in Core Courses of Urban Planning Programs.

Core courses	How many programs have core courses on climate change?	Of those, how many programs have one core course on climate change?	How many programs have two courses on climate change?	How many programs have three or more courses on climate change?
Undergraduate	36	19	9	8
Graduate	56	35	13	8
Total	92	54	21	16

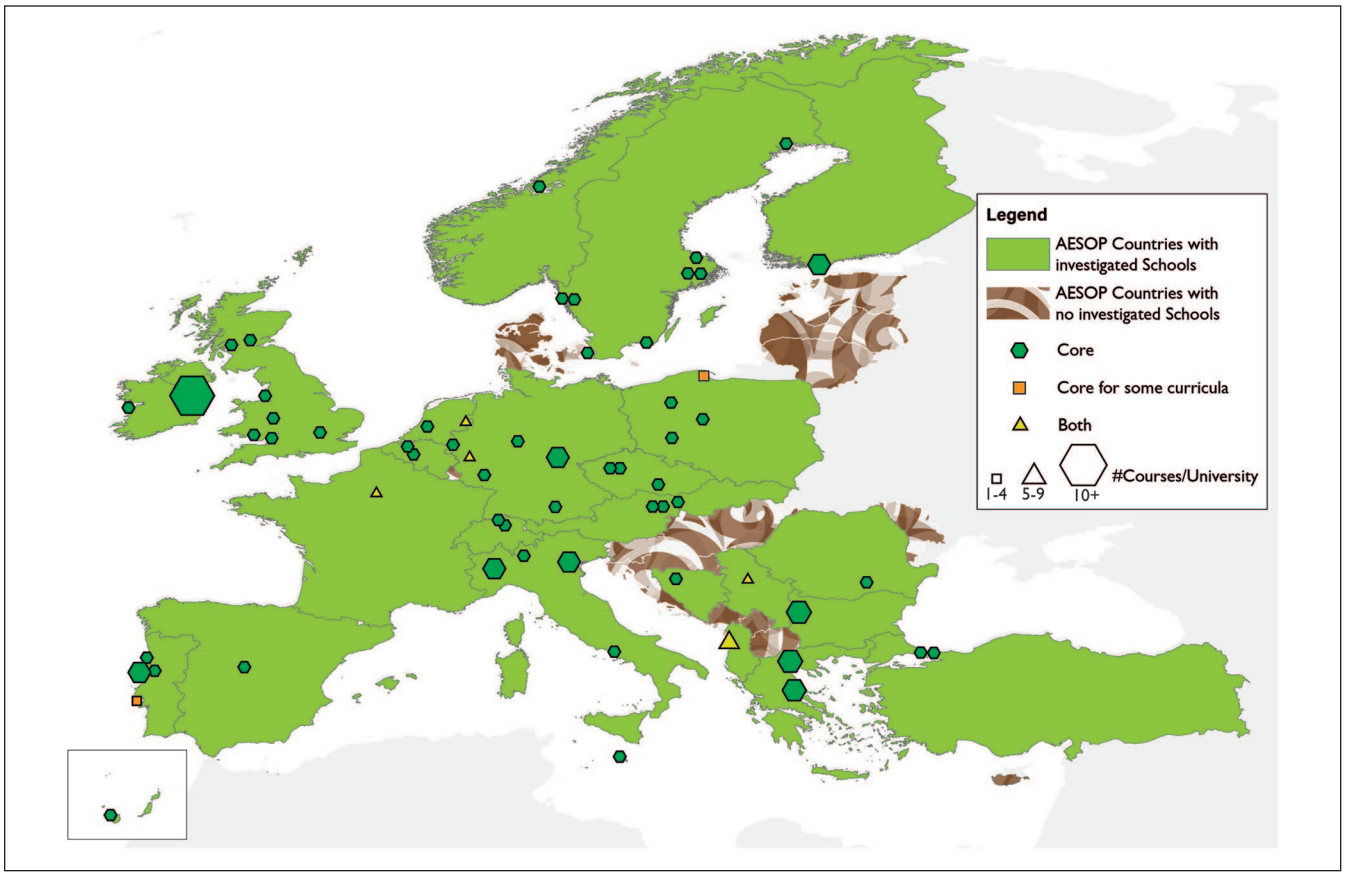

Figure 3. Climate change in core courses of urban planning programs.

We looked at how many programs are running elective courses on climate change. We found that eighty out of 143 programs are running elective courses on climate change (see Table 5). Of these, more than half, thus forty-four out of 143 programs are offering two or more elective courses, meaning that those programs that do offer elective courses may be offering some concentrations or specialist study in climate change.

We noted that thirty-seven out of 143 programs (25%) that have some offer in climate change are only offering this as part of electives and not part of the core courses. It is significant that a quarter of all programs are not offering climate change in core courses, but only as electives.

We also looked at the courses that have climate change in the title to understand if these courses are electives or core courses (see Table 6). We felt this is significant because it tells us if there are any courses that would be 100% dedicated to climate change within the core curriculum of planning programs. There are thirty-seven courses with climate change in the title, and only ten of these were found as core courses, including nine of them graduate courses. This means that it is generally only at the graduate level where one would find core courses that are completely dedicated to climate change. The lack of courses that are completely dedicated to climate change is a missed opportunity to have a strong focus on this within the curricula of both undergraduate and graduate programs.

Table 5. Climate Change in Elective Courses of Urban Planning Programs.

Elective courses	How many programs have elective courses on climate change?	How many programs have one elective course on climate change?	How many programs have two or more elective courses on climate change?	How many programs have only elective courses on climate change? (no core, just elective)
Undergraduate	25	12	13	6
Graduate	55	24	31	31
Total	80	36	44	37

Table 6. Core and Elective Courses with Climate Change in the Title.

Courses with climate change in title	How many courses with climate change in the title are core courses?	How many courses with climate change in the title are elective courses?
Undergraduate	1	8
Graduate	9	19
Total	10	27

Discussion and Conclusion

The survey presented here represents the first systematic study aimed at understanding to what extent European planning schools are addressing climate change in their curricula. Even though it was based solely on desk-based analysis drawing on publicly available information, the research represents a step forward in respect to shedding light on this issue across the diversity of European schools.

Climate change is one of the most critical and urgent challenges facing the world today. It has far-reaching consequences for human settlements, ecosystems, and socioeconomic systems. Planning schools have the responsibility to equip future planners with the knowledge and skills needed to address this pressing issue. Ideally, there would be few courses in the education of planners that do not include climate change and teach about the real effects on the coexistence of people.

Our study raises some key issues that need to be addressed through further research and action.

First, that studies such as this, and the others from different regions can be important catalysts for getting change happening on the ground, but more knowledge and resources are needed. The survey has involved many YA of AESOP, belonging to different European universities. In so doing, it contributed to increasing awareness among AESOP planning schools, and specifically among their young members, about the urgency of mainstreaming climate change into planning curricula. It remains to be seen what impact the findings of the study will have among AESOP member schools. The team presented this work to the AESOP Heads of Schools meeting in Tirana in 2022,[4] which raised the issue at the European level and at the ISOCARP conference in 2023.[5] Both presentations received enthusiastic feedback from planning schools and demonstrated an interest in tackling this issue and some have reached out for more guidance on how to integrate climate change into planning programs. In 2024, AESOP reviewed its core curriculum, providing the first update since 1995, and climate change feature prominently in this new version.[6] Scholars contributing to the Urban Thinkers Campus on Spatial Planning Education in Climate Action (Sliuzas 2021), highlighted the difficulty of effectively incorporating climate issues into planning curricula, primarily due to the limited knowledge of the teaching staff, both across Europe and also in the Global South. This is an issue also raised by planning schools in the United States, particularly those in smaller universities (Infield et al. 2025).

Thus, in the short term, planning schools might benefit from already existing and shared resources related to climate change. In detail, two avenues are potential sources of useful guidance and of materials for course work. First, in many countries, spatial planning has a professional organization that supports the development of the field in many ways and can be an interface between planning research and education and planning practice. For example, the American Planning Association's Knowledge Center provides guidelines and other resources related to climate change[7] that can also be used in curriculum development and teaching, especially within United States planning schools. The Town and Country Planning Association (TCPA) in the United Kingdom offers a guide to local authorities on planning for climate change (TCPA 2023). Another resource is UN-Habitat's Cities and climate change academy[8] (UN-HABITAT, 2015) that provides an outline for a course on planning for climate change consisting of seven modules, and including lecture notes, presentation, detailed syllabi, reading lists and case studies from around the globe. It is currently available in English and, on request, also in Spanish. Such resources provide a much-needed foundational body of knowledge that can kick-start the development of new courses that are tuned to specific settings. If users of these materials also reciprocate by adding new cases and materials to the sites, such repositories will

become even more valuable to the planning schools globally and their regional networks. Furthermore, planning schools can draw on other courses that are taught within the university, if available, which can cover at least the fundamental aspects of climate change (Infield et al. 2025).

The second key issue is that climate change content is being taught in some programs, but it is not reflected on publicly available programs or course materials. This point is also acknowledged by Hurlimann et al. (2021), who notes that the available online information is often not up-to-date or is incomplete. It has also become evident from the personal experience of those conducting the survey that sometimes there is content about climate change in each program, but it is not reflected in the published materials available online. On a positive note, this may mean that, in reality, climate change content may be higher than this study shows. However, if the inclusion of climate change content is not apparent from the course descriptions, prospective planning students will not be able to learn about it and opt for these study programs or course offerings accordingly. The low visibility of climate change content in the information fields constitutes a missed opportunity in the general effort to raise awareness of climate change, the urgency, and the role of planning in mitigation and adaptation strategies.

According to staff evaluation criteria for career advancement that are usually adopted in academia, research, publications and conference participation are usually more important than teaching duties: hence, small-scale tasks, such as the module and course descriptions or content and quality control, may receive inadequate attention. Indications of discrepancies between the teaching content apparent from course descriptions and that which is actually offered, means that planning schools need to give more attention to maintaining their alignment so that current and prospective students are well informed and can make well-informed decisions on their education and personal development path. Though there are some study programs that have made climate change a central concern across Europe, these are currently relatively few and far between. For most study programs, a more prominent presence of climate change in course descriptions, on websites, and in course contents is needed.

The third key issue is related to accreditation, and future research on climate change in planning curricula across Europe need to take a more detailed look at accreditation boards for study programs and their criteria in different countries. Andrea Frank (2021) gave some first insights from her comparative desk-based study regarding the situation in several countries, where in a few cases accreditation criteria at least include the mention of climate change (e.g. in the United Kingdom and Germany). In a cursory study undertaken by this team, we found that subject-specific criteria on accreditation documents were limited, and that general formulations provide considerable space for planning schools to avoid or at least limit their attention on climate change issues. In addition, it would be useful to investigate the exam criteria for professionals working in the field of spatial planning and whether they would need to have training in climate change.

The implications of this study point to several areas for future research and action, both at the European scale, as well as internationally. First, further research could consider both schools that are addressing climate change, as well as those that are not, to get a more nuanced picture of how much climate change is being taught across all European schools. Second, research needs to be undertaken to understand how schools are going about integrating climate change into their curriculums across a diversity of settings in Europe, with case studies that bring out examples across practical and theoretical courses. Pedagogies that include studio-work to connect classroom teachings with the real-world issues of climate change through linkages with public and private sector organizations would be useful to highlight (Sliuzas 2021). Third, an understanding about how soft skills taught in planning schools lend themselves toward enabling students to address climate change problems is needed. Diverse knowledge and methodologies are required for effective climate action such as: interdisciplinary thinking, co-production, stakeholder analysis, institutional mapping, social inclusion, needs assessment, and critical thinking around social, economic, political, legal and regulatory contexts (Sliuzas 2021). Fourth, current and future research could employ an action-research methodology working with AESOP member schools who seek to better integrate skills related to climate change into their curricula. AESOP is currently participating in an EU-funded project, financed under the Erasmus+ program, titled "Integrated planning approaches in higher education: collaborative educational prototype toward integrated approaches in the planning of inclusive, people-centric and climate-resilient cities (InPlanEd)"[9] which addressed the gaps in the current educational offer of urban planning programs and the competence profiles and skills required by the spatial planning market.

Finally, more research is needed on understanding student learning outcomes for those who have had education on climate change. This was beyond the scope of this research, but this could encompass feedback from learners and from graduates or case studies showcasing how students apply climate change concepts in planning practice. Long-term studies are needed to monitor and assess how pedagogical advancements related to climate change and planning education impact student learning outcomes. Some urban planning programs may rely on climate change courses being taught elsewhere in the university, and it would be useful to understand how relevant that is for students who need to understand how to integrate this knowledge into planning practice.

Appendix

The eighty universities that were surveyed. The number corresponds to the numbers in the map from Figure 1.

1. Polis University (Tirana)—Albania
2. University of Technology (Wien)—Austria
3. University of Natural Resources and Life Sciences (Wien)—Austria
4. KU Leuven—Belgium
5. Vrije Universiteit (Brussel)—Belgium
6. University of Antwerp—Belgium
7. University of Gent—Belgium
8. University of Banja Luka—Bosnia and Herzegovina
9. University of Architecture, Civil Engineering and Geodesy (Sofia)—Bulgaria
10. Brno University of Technology—Czech Republic
11. Czech Technical University (Prague)—Czech Republic
12. Aalto University (Helsinki-Espoo)—Finland
13. Institut d´Etudes Politiques de Paris—France
14. Université de Paris I—France
15. Université Paris Est Créteil/Université Paris Est Marne-la-Vallée—France
16. Université Sorbonne (Paris)—France
17. Université de Tours—France
18. Université de Bretagne Occidentale (Brest)—France
19. University of Kaiserslautern—Germany
20. University of Kassel—Germany
21. Erfurt University of Applied Sciences—Germany
22. RWTH Aachen University—Germany
23. TU Dortmund—Germany
24. Brandenburg University of Technology (Cottbus-Senftenberg)—Germany
25. TU Munich—Germany
26. National Technical University of Athens—Greece
27. University of Patras—Greece
28. University of Thessaly (Volos)—Greece
29. Aristotle University of Thessaloniki—Greece
30. University College Dublin—Ireland
31. University College Cork—Ireland
32. Roma Tre University—Italy
33. IUAV University of Venice—Italy
34. University of Naples Federico II—Italy
35. University of Palermo—Italy
36. Politecnico di Torino—Italy
37. Politecnico di Milano—Italy
38. University of Malta—Malta
39. University of Twente—the Netherlands
40. Utrecht University—the Netherlands
41. Radboud University—the Netherlands
42. Norwegian University of Science and Technology (NTNU)—Norway
43. Gdansk University of Technology—Poland
44. Adam Mickiewicz University (Poznan)—Poland
45. University of Lodz—Poland
46. Wrocław University of Science and Technology—Poland
47. University of Coimbra—Portugal
48. University of Aveiro—Portugal
49. University of Lisbon—Portugal
50. University of Porto—Portugal
51. "Ion Mincu" University of Architecture and Urban Planning—Romania
52. University of Belgrade—Serbia
53. University of Nis—Serbia
54. Slovak University of Technology in Bratislava—Slovakia
55. Universidad de Las Palmas de Gran Canaria—Spain
56. Universidad Politécnica de Madrid—Spain
57. Lulea University of Technology—Sweden
58. Chalmers University of Technology—Sweden
59. Malmö University—Sweden
60. Stockholm University—Sweden
61. Swedish University of Agricultural Sciences—Sweden
62. University of Gothenburg—Sweden
63. KTH—Royal Institute of Technology (Stockholm)—Sweden
64. Blekinge Institute of Technology—Sweden
65. University of Applied Sciences Rapperswil—Sweden
66. ETH Zurich—Switzerland
67. Middle East Technical University—Turkey
68. Yıldız Technical University—Turkey
69. Istanbul Technical University—Turkey
70. University of Glasgow—Scotland
71. Heriot Watt University—Scotland
72. University of Birmingham—England
73. Queens University Belfast—England
74. University of Liverpool—England
75. University of the West of England (UWE Bristol)—England
76. London School of Economics and Political Science—England
77. University of Hertfordshire—England
78. University of Westminster—England
79. Cardiff University—Wales
80. Czech University of Life Sciences in Prague—Czech Republic

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Supplemental Material

Supplemental material for this article is available online.

Notes

1. https://climate.ec.europa.eu/eu-action/european-green-deal_en
2. For the complete lists see https://aesop-planning.eu/aesop/members-directory
3. https://five.epicollect.net/
4. https://aesop-planning.eu/resources/news-archive/aesop/17th-heads-of-schools-meeting-hosted-by-polis-university-30th-march-1st-april-2022
5. https://toronto2023.isocarp.org/
6. https://aesop-planning.eu/images/Core_Curriculum/AESOP_Core_Curriculum_2024_.pdf
7. https://www.planning.org/resources/climatechange
8. https://unhabitat.org/cities-and-climate-change-academy
9. https://www.inplaned.eu/

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