

Fuqua School of Business  
Nicholas School of the Environment

***Master's in Business, Climate,  
and Sustainability***

Joint Degree Proposal



**Fuqua-NSOE *Masters in Business, Climate, and Sustainability* Degree Proposal**

**Contents**

- I. Rationale for the Program..... 4
- II. Description of the Program – The Masters in Business, Climate, and Sustainability (MBCS) Program in Detail..... 6
  - Curriculum..... 6
  - Experiential and Collaborative Learning ..... 7
  - Target Audience ..... 7
- III. Relationship of the New Program with Other Duke Programs ..... 9
  - Program Positioning ..... 9
  - Program Differentiation ..... 9
- IV. Market Research for the Proposed New Program ..... 13
  - The Business, Climate, and Sustainability Landscape ..... 13
- V. Financial Projections ..... 20
- VI. Student Community ..... 21
  - Administration..... 21
  - Admissions and Financial Aid ..... 21
  - Student Support..... 22
  - Career Services..... 23
- VII. Program Evaluation ..... 25
  - Program Interest and Relevance ..... 25
  - Inclusion of Diversity Perspectives ..... 25
  - Applicant and Student Quality ..... 27
  - Financial Health of the Program ..... 27
  - Career Success ..... 28
  - Third-Year Review..... 28
  - Learning Assessment Plan..... 28
- VIII. Risk Assessment ..... 30
  - Duke, Fuqua, and Nicholas Brand Risk..... 30
  - Use of Duke Resources..... 30
  - Cannibalization of Existing Programs ..... 31
- Appendix ..... 35
  - Appendix A: Description of Courses and Learning Opportunities ..... 36
  - Appendix B: Backgrounds and Bios of Key Faculty Participating in the Program ..... 40

Appendix C: Financial Projections .....	44
Appendix D: Learning Assessment Plan .....	48
Appendix E: Letters of Support .....	51
Appendix F: Sample of Graduate Programs in Business, Climate, and Sustainability .....	58
Appendix G: Faculty Approval .....	60

## I. Rationale for the Program

Climate change is arguably the most pressing problem of our time. It is one that has proven challenging for traditional policy-making for myriad reasons including political polarization and the tension between the global nature of the problem and the national nature of policy. During this time, trust in government has waned and trust in business leaders has increased. A recent Edelman Trust Barometer, conducted in 2023 with over 32,000 respondents in 28 countries, revealed that 62% of people trust businesses compared to only 50% who trust government.<sup>1</sup> That same report revealed that 82% of respondents expect business leaders to take a stand on climate change issues, compared to 89% who felt CEOs should take a stand on treatment of employees and 80% who felt CEOs should take a stand on discrimination.

Given that businesses are the primary source of greenhouse gas emissions, they are also uniquely positioned to come up with solutions. As a result, businesses have been increasingly called upon to make commitments to measure and report greenhouse gas emissions, to reduce those emissions either directly or through offsets, to collaborate in public-private partnerships to enhance climate resilience, to invest in climate technologies, and other activities. The private sector has stepped up to these calls for action. According to the Science Based Targets Initiative, nearly 5,000 companies worldwide are taking some action on greenhouse gas emissions, just under 2,500 of those companies have set science-based targets to limit greenhouse gas emissions and 1,779 companies have committed to have net-zero emissions.<sup>2</sup> The International Energy Agency documents over 300 companies that have pledged to have net-zero emissions by 2030 with an additional 600 who have pledged to be net-zero no later than 2050.<sup>3</sup> Yet most analysts agree that companies are not on track to achieve these ambitious commitments. A recent report from the consulting firm Accenture estimates that nearly all firms (93%) are not on target to achieve their goals.<sup>4</sup>

To ensure that the increased role of the private sector in climate mitigation is successful, businesses need employees who are trained to understand how business and climate go hand-in-hand. Along with an understanding of climate science, they need an understanding of how business functions, such as supply chain operations, finance, marketing, etc., are affected by climate science and the policy and measurement requirements that they entail.

The time to respond is now, and Duke is uniquely positioned to respond to this training gap to meet the needs of the private sector. Recently, Duke University President Vincent E. Price and (Former) Provost Sally Kornbluth put out a call to action for Duke University community members to mobilize the resources of the entire university to combat the growing climate crisis. The joint degree proposed herein is an answer to that call by leveraging the educational and

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<sup>1</sup> See <https://www.edelman.com/trust/2023/trust-barometer>

<sup>2</sup> See <https://sciencebasedtargets.org/>

<sup>3</sup> See <https://www.iea.org/reports/net-zero-by-2050>

<sup>4</sup> See <https://newsroom.accenture.com/news/2022/nearly-all-companies-will-miss-net-zero-goals-without-at-least-doubling-rate-of-carbon-emissions-reductions-by-2030-accenture-report-finds>

research expertise of a world-renowned business school and one of the oldest and most well-established environment schools.

This proposal represents the culmination of over two and a half years of strategic planning, research, deliberation, and engagement by the faculty and staff leadership of the Nicholas School of the Environment and the Fuqua School of Business. The process that produced this proposal has been organic and broadly inclusive. Although the primary author committee was small, board of visitors, focus groups, alumni, and many other Duke faculty and administrators were consulted throughout the process. Both Fuqua and Nicholas shared the proposal in advance and facilitated faculty meetings to discuss and receive feedback on March 20, 2024, and April 2, 2024, respectively. The regular-rank faculties of Fuqua and Nicholas voted to approve the submission of the proposal to the University on April 4, 2024, and April 16, 2024, respectively.

## II. Description of the Program – The Master’s Degree in Business, Climate, and Sustainability (MBCS) Program in Detail

### Curriculum

The 10-month, 15-course MBCS curriculum will combine dedicated coursework in business fundamentals taught by Fuqua School of Business (Fuqua) faculty with classes focused on climate science taught by Nicholas School of the Environment (Nicholas) faculty. Faculty from each school will play to their strengths, while coordinating the content of classes across the curriculum and co-teaching a class on climate innovation. Fuqua and Nicholas faculty will design courses specifically for the MBCS program, and students will follow a fixed curriculum without elective choices. Initially, both Fuqua and Nicholas will primarily utilize existing faculty aligned with the proposed courses (Appendix B). Donor funds will be used to support course development, and each school will negotiate teaching terms with faculty, while ensuring minimal impacts on existing programmatic teaching needs. In later years as the program grows in enrollment, it is anticipated that new faculty hires will be made to support the program. We expect these courses to be taught by full-time faculty at both schools. Course enrollment will be limited to those students pursuing the MBCS degree.

The curriculum is designed to meet six learning objectives:

1. Apply climate science to business fundamentals to understand how business decisions affect and are affected by the climate
2. Apply concepts from climate economics and policy to understand how businesses and private sector actors operate within the larger climate governance ecosystem
3. Employ business fundamentals to communicate effectively with colleagues in all parts of the business
4. Deploy analytic skills to enhance the business operations, strategies, etc. around climate science
5. Develop expertise on the intersection of climate science and two or more key business functions (e.g., operations, marketing, strategy, finance)
6. Understand how to function and communicate within private sector organizations and build partnerships across the organizational structure

The MBCS program will follow the structure of Fuqua’s successful Master of Quantitative Management (MQM) and Master of Management Studies (MMS) programs, with students matriculating in a summer session, followed by two fall and two spring terms. Each term is six weeks in length, followed by an exam period. Classes will meet twice per week for 2 hours and 15 minutes and we expect the program will follow a Wednesday/Saturday or Wednesday/Friday meeting pattern to use existing classroom space most effectively at Fuqua and Nicholas. Table 1 maps the curriculum onto the five terms students will be in residence in the program, while Appendix A contains course descriptions.

Table 1. Proposed Curriculum

	<b>Fuqua Primary (Nicholas Secondary)</b>	<b>Nicholas Primary (Fuqua Secondary)</b>	<b>Fuqua and Nicholas Primary</b>
<b>Term 1: Summer</b>	Financial and Managerial Accounting	Climate Science	
	Decision Analytics for Business and Sustainability		
<b>Term 2: Fall 1</b>	Marketing and the Environment	Climate Impacts	
		Climate Economics and Policy	
<b>Term 3: Fall 2</b>	Climate Finance	Climate Reporting and Carbon Accounting	
	Sustainable Operations		
<b>Term 4: Spring 1</b>	Climate and Strategy	Practicum	Climate Innovation
<b>Term 5: Spring 2</b>	Leading for Sustainability	Climate and Energy	
		Practicum	

### Experiential and Collaborative Learning

The program integrates a two-term practicum in the Spring that creates an extended time for students to engage deeply in the application of climate and business. Both Fuqua and Nicholas have extensive experience delivering practicum experiences. While a 10-month program like this does not allow for a traditional internship, the practicum is an intentional component of the framework to provide students the opportunity to apply and integrate other coursework in much the same way as an internship.

Leveraging best practices developed at Nicholas and Fuqua, projects will be sourced domestically and internationally for the practicum. The projects will then be matched by student interest, and faculty and project facilitators will direct students and help manage the projects.

### Target Audience

The target audience is early career students, with 0-2 years post-undergraduate work experience. While students will benefit from undergraduate exposure to business, climate, environment, and sustainability coursework and experiences, there will not be required prerequisite coursework for admission consideration. A base aptitude in quantitative areas is expected.

It is expected that students from around the world will be attracted to the MBCS degree, with the U.S., India, and China dominating enrollments. We believe that most prospective students will generally choose to study in the country where they seek employment. There are many versions of European degrees with some business and sustainability content and those degrees may be attractive to European and other non-U.S. students who desire to work in Europe (see the discussion under Market Research). In addition, many of the European degrees are far less expensive for European students to complete. For students interested in employment in the U.S., we expect a U.S.-based degree will be favored. Within the U.S., the Duke, Fuqua, and Nicholas reputations will elevate the profile of our degree, and we expect will provide immediate credibility relative to other offerings.

The MBCS will be an in-person degree and will provide U.S. work authorization through OPT (and the STEM OPT extension) for international students seeking employment in the U.S after graduation. There are several online degrees connected to business and sustainability, but online degrees do not offer this employment benefit (OPT) to international students.

In many aspects, the demographics of the target audience for this program overlap with the audience seeking information about and considering applying to some of the existing Fuqua and Nicholas degrees. While there may be some competition with existing programs at Duke, we expect an absolute increase in overall applications as this new program is seen as a unique offering that aligns with students interested in business, climate, and sustainability. The collective applicant pool for Fuqua and Nicholas includes qualified applicants who are not currently admitted and fit the profile for the new program. We discuss this further in the Risk Assessment section below.



### III. Relationship of the New Program with Other Duke Programs

#### Program Positioning

The MBCS degree will prepare graduates to step into roles that require an understanding of the intersection of business, climate, and sustainability. The degree is focused on a younger population of master's students who have minimal, if any, prior work experience and upon graduation can apply their knowledge in analyst level roles.

Unlike other master's degrees that may offer a business education with a sustainability component, the Fuqua/Nicholas Master's degree in Business, Climate, and Sustainability offers a unique and integrated, in-depth education in business fundamentals through a climate-focused lens. All courses will be designed specifically for this program through the deliberate integration of business and climate in the coursework - preparing graduates to quickly move into entry level positions in organizations. Beyond the classroom, the Duke, Fuqua, and Nicholas alumni network provides students with immediate access to an extensive professional alumni network.

#### Program Differentiation

Students seeking to enhance their career path through a management-oriented master's degree have many options to choose from at Duke. Indeed, Duke has a diverse portfolio of master's degree offerings, the most relevant of which include Fuqua's MBA (Master of Business Administration), the Nicholas School's MEM (Master of Environmental Management), Sanford's MPP (Master of Public Policy), and Pratt School's MEM (Master of Engineering Management). Each of these offerings face competition from many peer institutions, but Duke is considered an elite provider of education and Duke stands out among institutions considered to provide the highest tier of offerings.

We believe the MBCS degree will have a unique position as a highly competitive business / sustainability degree, but at the same time do not expect it to negatively impact Duke's existing offerings. The MBCS is listed in Table 2 along with several other related management and sustainability degrees offered at Duke. The Pratt management degrees are not included as their programs (for example the Pratt MEng in Climate and Sustainability Engineering) are geared towards practicing engineers with a focus on engineering over business.

The differentiating factors noted in Table 2 across these programs include:

- Time and financial investment to complete the degree (1 to 3 years; \$65,000-\$180,000)
- The extent of immersion in Business and Management
- The extent of immersion in Climate and Sustainability
- Amount of post-undergraduate work experience
- Initial employment, post-graduation

As outlined in Table 2, The MBCS degree will be a pre-experience degree completed in 10 months, provide an integrated immersion in business, climate, and sustainability, and prepare graduates for analyst-level positions upon graduation.

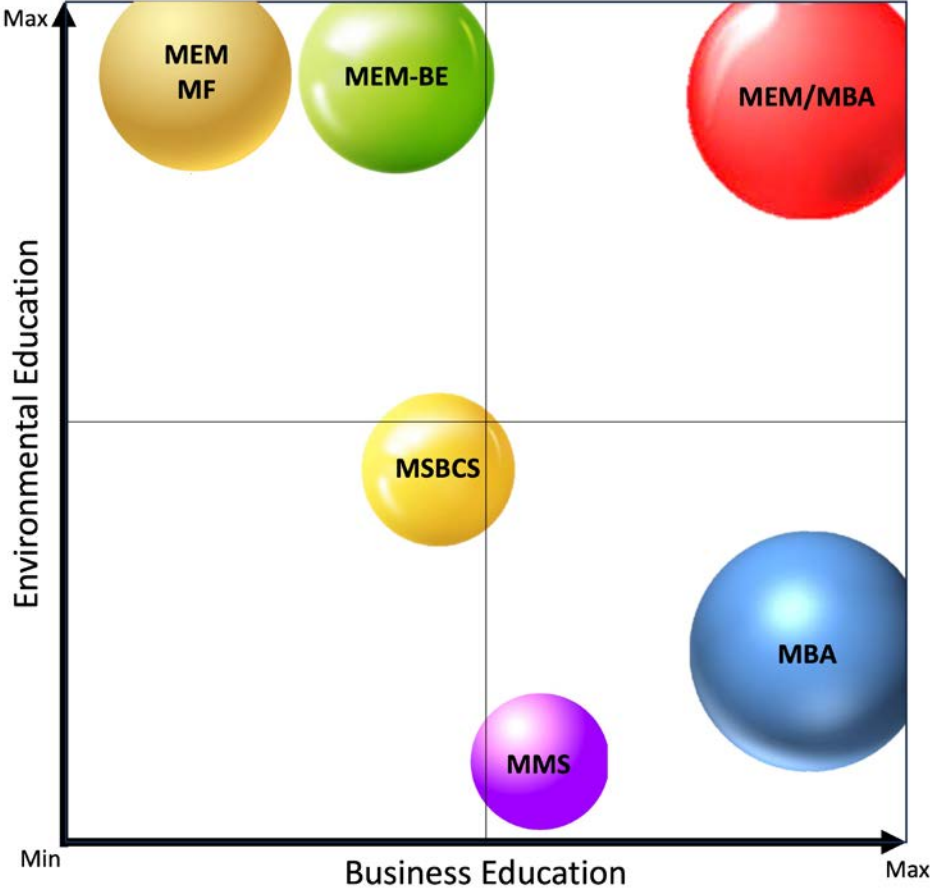
*Table 2: Business and Environment Related Degree Differentiation at Duke*

<b>Degree</b>	<b>Description</b>	<b>Tuition</b>	<b>Differentiators</b>	<b>Career Target</b>	<b>Target Salary</b>
<b>MBCS</b>	<ul style="list-style-type: none"> <li>• 10 months</li> <li>• Business Essentials</li> <li>• Climate Essentials</li> </ul>	\$65,000	<ul style="list-style-type: none"> <li>• Little to no work experience</li> <li>• Business, Climate, and Sustainability Focused</li> <li>• Defined curriculum</li> </ul>	Analyst	\$60,000- \$90,000
<b>MEM</b>	<ul style="list-style-type: none"> <li>• 2 years</li> <li>• Environmental Excellence</li> </ul>	\$93,000	<ul style="list-style-type: none"> <li>• No work experience required, but is a plus</li> <li>• Previous training in natural, social sciences</li> <li>• Comprehensive environmental education</li> <li>• Management and policy toolkit</li> <li>• Customizable curriculum with specialization</li> </ul>	Manager Director Scientist	\$50,000- \$140,000
<b>MEM (Business and Environment concentration)</b>	<ul style="list-style-type: none"> <li>• 2 years</li> <li>• Environmental Excellence</li> <li>• Business Essentials</li> <li>• Practice oriented</li> </ul>	\$93,000	<ul style="list-style-type: none"> <li>• Modest work experience, or previous business coursework</li> <li>• Previous training in natural, social sciences</li> <li>• Comprehensive environmental education</li> <li>• Corporate sustainability excellence</li> <li>• Client-focused</li> </ul>	Manager Director	\$70,000- \$140,000
<b>Master of Forestry (MF)</b>	<ul style="list-style-type: none"> <li>• 2 years</li> <li>• Forestry Excellence</li> <li>• Practice oriented</li> <li>• MEM/MF option</li> <li>• SAF-accredited</li> </ul>	\$93,000	<ul style="list-style-type: none"> <li>• No work experience required, but is a plus</li> <li>• Previous training in natural, social sciences</li> <li>• Forestry-specific finance and management</li> <li>• Field-based</li> </ul>	Forester Manager Associate	\$50,000 - \$85,000

<b>Degree</b>	<b>Description</b>	<b>Tuition</b>	<b>Differentiators</b>	<b>Career Target</b>	<b>Target Salary</b>
<b>MMS</b>	<ul style="list-style-type: none"> <li>• 10 months</li> <li>• Business Essentials</li> </ul>	\$65,000	<ul style="list-style-type: none"> <li>• Little to no work experience</li> <li>• Business-focused</li> <li>• Defined curriculum</li> </ul>	Analyst	\$60,000-\$90,000
<b>MBA</b>	<ul style="list-style-type: none"> <li>• 2 years</li> <li>• Business Excellence</li> </ul>	\$150,000	<ul style="list-style-type: none"> <li>• Work experience++</li> <li>• Comprehensive business education</li> <li>• Leadership ready</li> <li>• Team-based</li> <li>• Customizable curriculum, electives</li> </ul>	Director Executive	\$140,000-\$200,000
<b>MEM/MBA</b>	<ul style="list-style-type: none"> <li>• 3 years</li> <li>• Business Excellence</li> <li>• Environmental Excellence</li> </ul>	\$180,000	<ul style="list-style-type: none"> <li>• Work experience+</li> <li>• Comprehensive environmental education</li> <li>• Comprehensive business education</li> <li>• Leadership ready</li> <li>• Two degrees earned</li> </ul>	Director Executive	\$140,000-\$200,000

The degrees listed in Table 2 can be mapped as a portfolio of offerings at Duke by positioning them in a four-quadrant matrix with business knowledge and environmental knowledge on each of the axes, as shown in Figure 1. This portfolio is key as it encompasses every role a hiring manager might seek within an organization, particularly when prioritizing sustainability in the hiring process across all positions. That is, Duke can provide a “one-stop” platform for hiring managers to meet their organization’s needs. This offers a unique competitive advantage for Duke relative to its peer organizations, who may only offer select graduate offerings.

Figure 1: Duke's Portfolio of Graduate Business & Environmental Management Offerings



## IV. Market Research for the Proposed New Program

### The Business, Climate, and Sustainability Landscape

A driving force for creating this degree is that while there is an acute need for talent with expertise that is focused on the intersection of business, climate, and sustainability, the higher education market is not yet producing enough of these graduates to meet the needs of the private sector. A review of the market shows that demand for professionals with functional business skills and expertise in climate science and sustainability is outpacing the supply of this talent. Some of this demand may be met with graduates of existing master's degree programs with a business and sustainability focus, including the existing dual (not joint) MEM/MBA degree at Duke between Fuqua and Nicholas. However, these programs are not geared for entry-level positions. There are few programs that are deeply connected to climate and business that offer an integrated program, and even the MEM/MBA dual degree is a course of study where students pursue both the Daytime MBA at Fuqua and the Master of Environmental Management at Nicholas, without having coursework that is integrated across the two programs. In addition, a dual degree student at Fuqua and Nicholas typically has work experience and invests three years in completing the degree with career pathways in consulting, corporate sustainability, leadership, etc. Through the proposed joint degree, there is an opportunity for Duke to address the talent deficit and be on the front end of providing entry-level analyst talent that connects business, climate, and sustainability.

#### *Background*

A recent BCG white paper provides support for the expectation that market demand for graduates with business and climate expertise will be significant.<sup>5</sup> In particular, BCG conducted interviews with 250 sustainability focused leaders from 15 different organizations. The BCG report argues that higher education needs to provide exactly the skills that we envision will be the focus of the proposed joint degree.

*“At the advanced-degree end of the spectrum, learning experiences will need to weave together sustainability and business concepts to deftly navigate the new reality of creating value and competitive advantage for companies while protecting and contributing to a sustainable future for all. (p. 26)”*

BCG further emphasizes that there is little prospect for higher education to produce enough of these graduates in the short run and that organizations will need to grow their capabilities internally until the market can catch up.

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<sup>5</sup> Lesser, Kennedy, Cuellar, Lyle, Shah, Bamberger, and Missert (2023), “Put Talent at the Top of the Sustainability Agenda”, January. BCG White Paper.

Below are some anecdotes from the above-referenced BCG white paper that support our position that the demand for graduates with the joint degree program will be high and that we can be an early provider of that talent.

- *We have seen “36x growth in the number of companies committing to science-based targets (to >4,200 companies) from 2017 through 2022. (p.3)”*
- *“1/3 of the world’s largest companies have announced net-zero targets for 2030 to 2050. (p. 3)”*
- *“Only 17% of companies report being on track to reduce emissions in line with their ambitions. p. 4)”*

BCG emphasizes that companies *“can’t even wait for higher education to yield the necessary expertise, partly because of the exponential growth in the demand for this kind of talent and partly because seasoned talent is needed urgently. (p.8)”* A significant theme in the BCG report is that higher education is not yet providing the talent that the market needs and companies are forced to fill the gap through providing their own training.

*“The fact that just 17% of companies are on track to meet their emissions targets reflects the enormous amount of work that is yet to be done to turn ambition into action— which points to a looming challenge: Do companies have the talent they need to pull it off? Turns out, it’s hard to acquire the expertise required to plan, let alone implement, sustainability transformations. According to LinkedIn, the number of job postings that include sustainability skills grew by 8% per year from 2016 through 2021, but the number of people with those skills increased by just 6% annually over that period. Consequently, job searches that target sustainability experts often come up empty. The same is true when companies seek functional talent with fluency in key sustainability topics.” “Procurement people with sustainability knowledge just don’t exist,” explained one executive BCG spoke with (p. 4).*

*“Equipping our current workforce with the skills required to undertake successful sustainability transformations—and doing so on the required timeline—is an enormous task. The leaders we spoke to have been independently innovating their way to the talent solutions they need, since the institutional infrastructure to educate, enable, and equip today’s workforce to drive sustainability transformations is not yet fully in place. If we’re to meet the dual challenges of speed and scale on an economy-wide level, we will need to ramp up these efforts.*

*And while we have to concentrate on current employees, planning for the workforce of the future is also critical. This will require shifts within the educational system to ensure there’s a new generation of workers with sustainability skills and a fundamentally different approach to business that is more sustainable from the start. (p. 1)”*

A recent LinkedIn Economic Graph, *Global Green Skills Report 2023*, corroborates the need for qualified talent if employers are going to be successful in addressing climate change and sustainability.<sup>6</sup> In particular, this report finds that across 48 countries, between 2022-23 the

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<sup>6</sup> <https://economicgraph.linkedin.com/en-us/research/global-green-skills-report>

median demand for green talent (measured by job postings) grew by 22.4%; on the other hand, the share of green talent (measured by green-skills listed on profiles), grew by 12.3%.

Conversations with Nicholas alumni working in private sector positions with a focus on sustainability, provided additional support and encouragement that the curriculum and defined outcomes of this degree are needed within private sector organizations. Specifically, they validated the need for graduates to have the business knowledge layered with the value-added environmental and climate science knowledge that is necessary for the targeted entry-level analyst positions.

### *Student Demand*

Complementing the expected employer demand, prospective business school students are concerned about sustainability and environmental issues and interested in programs that align with the proposed joint degree. These prospective students value schools that incorporate this content into their curricula.<sup>7</sup> Reflecting this, a sample of Deans from European schools recently communicated that it is *“imperative that aspects of ethics, corporate social responsibility, and sustainability are top of the agenda at business schools.”* *“Incoming students are much more concerned about environmental issues, about long-term sustainability. . . . It’s becoming a very, very important theme . . . and they’re beginning to push us as educators to deal with issues of sustainable, of societal good throughout our program portfolio.”* (p. 18).

In addition, prospective business school students increasingly view sustainability or Corporate Social Responsibility (CSR) as critical elements of business school’s curricula and many desire to work for organizations focused on social good after graduation (GMAC Prospective Students Survey 2023 Summary Report).

*“Among respondents to the Prospective Students Survey, 42 percent view sustainability or corporate social responsibility as curriculum must-haves and are more likely to seek out organizations involved in social good post-GME. (p. 16)”*

The Nicholas School added the Business and Environment (BE) concentration to the MEM degree in 2018. Since then, interest for admission consideration for enrollment into the BE concentration has been healthy (116% increase in total applications from 2018 to 2023). Due to resource limitations, Nicholas maintains a small incoming cohort of BE students and is unable to offer admission into the BE concentration to all qualified applicants. In 2023-24, there were a total of 159 completed applications for a BE class size of 25. Further, while many applicants are interested in the BE concentration, many are not considered for admission because they do not meet the BE programs preferred minimum requirements: at least one year of post undergraduate work experience and/or significant undergraduate business coursework. Many of these applicants are otherwise admissible and are often put on the waitlist and/or ultimately

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<sup>7</sup> Luijendijk-Steenkamp (2022), “The Future of Graduate Management Education As Envisioned by European Deans”, Graduate Management Admissions Council.

denied admission. For fall 2023 admission, 44% of BE applicants (primary concentration) were admitted; 56% were either waitlisted or denied admission. Many of these applicants would be the target audience for the MBCS degree. Further, each year there are applicants interested in pursuing the dual MEM/MBA degree that are not admitted due, in part, to the lack of post-undergraduate work experience that is required for the Fuqua MBA. Again, the MBCS degree could be a viable option for these perspective students.

We also note that over the last decade we have seen an increased interest in one-year graduate degrees. According to GMAC research, one-year programs in business are popular.<sup>8</sup> Fuqua has seen a high level of demand for one-year programs (2023 – MMS: 1,617 completed applications; MQM: 2,137 completed applications). In line with that, graduate business education has seen an increase in applications to one-year programs at a time when traditional two-year MBA applications have fallen.<sup>9</sup> This is due in part to the desire for recent graduates to add foundational skills in business in order to attain or excel in an early career job while recognizing, as recent graduates from an undergraduate program, they are not yet positioned with meaningful work experience for an MBA. Also corroborating the interest in one-year programs, Nicholas has noted a recent trend among admitted students who do not attend Nicholas, indicating they chose to attend a shorter duration degree program than the traditional two-year master’s program. It is expected that this trend will continue. In addition, Nicholas applicants pursuing the MEM/MBA who are not admitted to Fuqua, generally decline their offer of admission to Nicholas to pursue a dual degree program at another institution. Those applicants, generally with little or no experience, would be target candidates for the MBCS degree.

### *Current offerings in Business and Sustainability*

While there is increasing demand for these programs and their graduates, interest in business and sustainability is not entirely new and business schools already have some course offerings that connect to sustainability.<sup>10 11 12</sup> Fuqua’s Daytime MBA program has elements of sustainability and climate in several courses. Duke’s three-year MEM/MBA dual degree between Fuqua and Nicholas is one way talent is being prepared for the mid- to higher- level of the employment market. UC-Berkeley has recently entered that space with a similar dual degree through an offering between Haas Business School and the Rausser College of Natural Resources that provides a Master of Business Administration and Master of Climate Solutions

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<sup>8</sup> Walker (2023), “GMAC Prospective Students Survey 2023 Summary Report”, Graduate Management Admissions Council.

<sup>9</sup> <https://www.forbes.com/sites/marlenacorcoran/2023/07/30/the-rise-of-master-in-management-master-of-finance-and-other-business-degrees/?sh=290f07b05b55>

<sup>10</sup> See <https://ellinlolis.com/blog/the-best-sustainability-mbas/>. Sloan, Stern, Rotman, Ross, Haas, Fuqua, and Kellogg are noted in the US. Additional schools noted outside the US.

<sup>11</sup> Wharton Major in Business, Energy, Environment, and Sustainability: <https://esg.wharton.upenn.edu/students/mba-bees-major/>

<sup>12</sup> Yale sustainability positioning: <https://som.yale.edu/the-som-experience/interests-and-industries/sustainability>



degree.<sup>13</sup> Media such as the Financial Times have recently added metrics for evaluating CSR and climate coursework as part of their MBA rankings.<sup>14</sup> While increasingly important, these offerings are rarely the primary focus of the MBA degree.

There are some business programs that either focus on sustainability or deeply incorporate aspects of sustainability. While it is difficult to identify all the relevant programs, Poets & Quants, which is one of the primary sources of information for prospective business school students, recently discussed programs focused on sustainability and highlighted the top 20 business programs, as ranked by Corporate Knights. The highlighted programs are from countries across the globe and are not necessarily connected with the best schools for studying business or the environment. We do not necessarily endorse the Corporate Knights methodology and acknowledge that the ranking methodology is only one way to evaluate MBA programs offering degrees connected to sustainable business.

*Table 3 – Poets and Quants Summary of Corporate Knights Business School Sustainability Rankings<sup>15</sup>*

2022 Rank:	School:	Country:	Sustainability Course Integration:	Sustainability Institutes - Max 5:	Related Research Intensity:	Sustainability-Related Publications:	Sustainability Citations:	Final Weighted Score:
1	Griffith Business School	Australia	100%	5	100%	68%	100%	99%
2	Warwick Business School	UK	69%	5	87%	79%	76%	85%
3	Maastricht University - School of Business and Economics	Netherlan	70%	3.5	100%	42%	100%	80%
4	La Trobe Business School	Australia	33%	5	96%	44%	89%	72%
5	Gordon S. Lang School of Business and Economics	Canada	78%	5	50%	47%	24%	70%
6	Duquesne University – Palumbo-Donahue School of Business	US	93%	4	38%	50%	59%	69%
7	University of Bath – School of Management	UK	50%	5	59%	59%	29%	62%
8	Toronto Metropolitan University: Ted Rogers School of Management	Canada	50%	5	68%	56%	21%	62%
9	University of Vermont – Grossman School of Business	US	94%	2	32%	62%	2%	61%
10	Centrum PUCP Escuela para los Buenos Negocios	Peru	79%	5	25%	46%	12%	58%
11	University of Victoria – Peter B. Gustavson School of Business	Canada	69%	3.5	24%	43%	17%	55%
12	University of Edinburgh Business School	UK	17%	5	71%	56%	55%	55%
13	EMLyon Business School	France	63%	5	33%	28%	16%	54%
14	University of Exeter Business School	UK	50%	4	41%	45%	40%	54%
15	University of Miami – Miami Herbert Business School	US	36%	4.5	49%	68%	9%	53%
16	York University – Schulich School of Business	Canada	29%	5	60%	45%	45%	53%
17	University of Winchester	UK	56%	3	18%	67%	19%	53%
18	Glasgow Caledonian University: School of Business & Society	UK	36%	5	20%	81%	13%	52%
19	Eada Business School Barcelona	Spain	55%	1	27%	29%	75%	51%
20	Colorado State University College of Business	US	70%	1.5	13%	43%	13%	51%

P&Q from Corporate Knights

Further online research indicates that specialized programs have begun to emerge over the last decade, especially in Europe. While it is hard to find unbiased resources summarizing the offerings, the table below was summarized by an online website (masterstudies.com, which appears to help recruit students) and would be something prospective students would find while searching for master's programs in business, climate, and sustainability.<sup>16</sup>

<sup>13</sup> <https://poetsandquants.com/2024/01/10/how-berkeley-haas-is-leading-in-the-battle-against-climate-change-again/?pg-category=business-school-news&pg-category-2=mba-news&pg-category-3=specialized-masters-news>

<sup>14</sup> See: <https://www.ft.com/mba-method>

<sup>15</sup> Source: <https://poetsandquants.com/2022/11/20/ranking-the-top-mbas-for-sustainability/>

<sup>16</sup> See: <https://www.masterstudies.com/masters-degree/sustainable-business>

Table 4 – Illustrative Set of Sustainability focused business programs as summarized by a recruiting website<sup>17</sup>

Program	Institution	Country	Non Local tuition	Degree	Pace	Length	Format	Language
Master in Business Sustainability Management	INSA Business, Marketing & Communication School	Spain	EUR 5900	Master	Full time	1 year	On-Campus	English
M.A. Social Design and Sustainable Innovation	SRH Berlin University of Applied Sciences	Germany	EUR 22800	MA	Full time	4 semesters	On-Campus	English
MSc in Sustainable Entrepreneurship	University of Groningen	Netherlands	EUR 35,600	MSc	Full time	1 year	On-Campus	English
International Master in Sustainable Business & Innovation	EADA Business School Barcelona	Spain	EUR 26,000	Master	Full time	9 months	On-Campus	English
Master in Circular Economy Management	EIIS - European Institute of Innovation for Sustainability	Italy	EUR 9,000	Master	Full time	1 year	Distance Learning, On-Campus	English
Master of Science in Sustainable Business	University of Miami Patti and Allan Herbert Business School	US	\$77,465	MSc	Full time	1 year	On-Campus	English
Master Global Sustainable Business Management	Amsterdam University of Applied Sciences	Netherlands	EUR 13,883	Master	Full time	18 months	Blended, On-Campus	English
Master in CSR and Sustainable Leadership	OBS Business School	Online	EUR 7500/co	Master	Full time	12 months	Distance Learning	Spanish
M.A. Environmental and Social Sustainability of Business (in partnership with UPEACE)	The United Nations Institute for Training and Research (UNITAR)	Online/Europe	EUR 19,500	MA	Full time	2 semesters	Blended, Distance Learning	English
Master in Transformative Leadership for Sustainable Business	Luiss Business School Amsterdam	Netherlands	EUR 18,000	Master	Full time	1 year	On-Campus	English
Master's Programme in Sustainable Business Management, Leadership for Change	Tampere University	Finland	EUR 24,000	MSc	Full time	2 years	On-Campus	English
Advanced Master's in Project Management in Circular Economy	ITECH Lyon	France	EUR 9,000	Master	Full time	1 year	On-Campus	French
Master of Sustainable Futures (Research)	University of Technology Sydney	Australia	A 66,000	Master	Full time, Part time	2 years	On-Campus	English
MIM - Master in International Management - Sustainable Business	United International Business Schools	Switzerland	CHF 33,600	Master	Full time, Part time	9 months	On-Campus	English
MA in Sustainable Fashion: Business and Practices	Kingston University	UK	GBP 18,700	MA	Full time	1 year	On-Campus	English
Master of Science in Sustainable Finance and Investments	Utrecht University	Netherlands	EUR 17,500	MSc	Full time	1 year	On-Campus	English
Master of Science in Business and Social Impact	Utrecht University	Netherlands	EUR 20,750	MSc	Full time	1 year	On-Campus	English
Master of Science in Sustainable Business and Innovation	Utrecht University	Netherlands	EUR 41,500	MSc	Full time	2 years	On-Campus	English
Master of Science in Sustainable Fashion	Glasgow Caledonian New York College	US	\$37,904	MSc	Full time, Part time	16 months	Blended, Distance Learning, On-Campus	English
MSc Management for a Sustainable Future	Plymouth Marjon University	UK	GBP 10,500	MSc	Part time	2 years	Distance Learning	English
Sustainable Business MSc (Online)	Falmouth University	online	GBP 12,150	MSc	Part time	2 years	Distance Learning	English

In addition to the programs indicated above, there are a host of other programs that are positioned in the competitive space where we expect the joint degree to participate. We list a number of programs in the appendix that we identified as offering a degree related to the Duke MBCS. An example that appears to be closely aligned with our proposed joint degree is offered

<sup>17</sup> Compiled from: <https://www.masterstudies.com/masters-degree/sustainable-business>

by Georgetown University and a description is provided below, with curriculum details provided in Appendix F.

While we will not be the first to market with a degree that offers a blend of business and climate coursework, we expect that our positioning will set us apart in the one-year master's space. Compared to the programs we reviewed, the MBCS degree will be one of the few that provides integrated coursework focused on developing business expertise in the specific context of climate and positioned for those seeking entry level positions. A relatively easy model for schools to offer a business and climate degree is to offer a curriculum with courses in business and other courses in climate and sustainability. A more difficult model is to have coursework that integrates business in the context of climate and the environment; this is the goal of the Duke MBCS joint degree.

This is a nascent market that is not being met well by graduate programs that integrate business and climate. We do expect more universities to consider entering this space and we could see other schools with both top business programs and schools of the environment launch similar programs. The Duke brand will matter and we should be highly competitive both when we launch the program and over time.

## V. Financial Projections

A high-level financial model is presented in Appendix C. We present a base case in Table AC1, a breakeven scenario under very low demand in Table AC2, and a breakeven scenario with lower demand and two sections in Table AC3. Financial highlights include:

- The program is expected to be contribution-positive over the course of the five-year plan. Key factors contributing to this expectation include:
  - Donor funding totaling three million dollars has been committed to Fuqua and Nicholas in support of this degree. This funding will support development and initial start-up costs.
  - The Provost Office has granted a waiver on allocated costs for the first three years of the program as the degree aligns with the Duke Climate Commitment strategic priority (Appendix C).
- If the program is fully approved by the end of FY25, the program will launch with marketing, recruiting, and course development in FY26 (summer 2025). The first student cohort will enter and graduate in FY27.
- The program will have no revenue in the launch year and will require close to \$2.8M in the launch year to fund course development, marketing, recruiting, general support, and University allocated costs.
- University allocated costs are assumed to be 21% in the pre-launch year, 0% for the first three operational years and return to 21% in the fourth year of operations with students.
- Enrollment targets are:
  - 100 students (2 sections) in FY27
  - 100 students (2 sections) in FY28
  - 150 students (3 sections) in FY29
  - 200 students (3 sections) in FY30

The primary program costs are associated with faculty and staff. Revenue will be generated through student tuition. If student enrollments fail to materialize at the scale that is expected, adjustments can be made to how many faculty and staff are needed for program support and the program can remain contribution-positive with two sections, or under certain assumptions, even one section (see the breakeven scenario in Table AC2, which assumes one section). An additional scenario of breakeven under lower demand with two sections is provided in Table AC3.

## VI. Student Community

Key considerations were made when designing the support systems for the program. These goals included the expectation that this degree serves a need that is currently not being met. As we recruit and support the students in the MBCS program, we must clearly differentiate the MBCS degree relative to existing degrees, especially the existing dual degrees between business and environment programs (MEM/MBA).

### Administration

It is important that we recognize that this degree is one that is jointly owned and supported by Nicholas and Fuqua, whereby the students feel equally a part of both schools throughout the duration of the degree (versus alternating between schools). It is also important for students to have a clear understanding as to where and how to access key information and support services during their time at Duke, including financial aid, admissions, registrar services, and visa services. Fuqua will serve as the administrative home for these critical functions and will communicate regularly with Nicholas programs to ensure consistency and understanding of operations. Nicholas will maintain program staff to provide programmatic, admissions, and career support, as outlined below.

Moreover, it is essential that the curriculum be completely integrated, though not co-taught, across courses taught by faculty at both schools; we should not be in a state where the Fuqua and Nicholas courses operate as independent silos. Thus, we propose that a Senior Associate Dean be in charge of the proposed program and part of this person's responsibilities would be to ensure that the courses are appropriately integrated. Given that the format of the program will follow the Fuqua curriculum, we will begin by having the first Senior Associate Dean be from Fuqua. Once the program gets to a steady state of three sections, we envision this role alternating across both schools.

### Admissions and Financial Aid

Fuqua and Nicholas are both committed to recruiting a diverse student population and promoting the inclusion of all students, staff, and faculty involved in the program. This commitment is consistent with how we approach our existing programs. We believe that having a diverse student body will best enable the development of everyone in the program and that future development is enhanced from experience working in diverse teams.

Fuqua and Nicholas will collaborate on the admissions and financial aid strategy and maintain a close working relationship related to executing that strategy. To set this degree apart from existing programs at Fuqua and Nicholas, distinct web content will be created to serve as the primary recruitment and student resource portal. It will be important for students to be able to connect to the program portal from Nicholas, Fuqua, and Duke's Climate Commitment content.

The operational logistics of executing the marketing, recruiting, admitting, aid awarding, and yield are best managed by one school to ensure streamlined operations and a seamless applicant experience. Fuqua will be responsible for recruitment and admissions activities. A dedicated staff member will be homed at Nicholas, as well, to serve as a liaison with the Nicholas faculty and admissions office, and to provide recruitment and admissions support, ensuring the goals of both Fuqua and Nicholas are reflected in interactions with prospects and matriculants. Fuqua's and Nicholas' existing admissions teams can extend the degree's outreach efforts by equipping themselves with fundamental knowledge about the degree program. By considering the MBCS as an additional opportunity within the existing Fuqua and Nicholas portfolios – and not a competing one – the experience for prospective students will be enhanced.

Similar to the MMS program, we anticipate the application and admission consideration will require:

- Undergraduate degree from a 4-year accredited program
- Academic transcripts and graduate transcripts, as relevant
- Responses to essay questions to assess readiness and interest
- Standardized test - GMAT or GRE scores
- One letter of recommendation
- Resume
- Interview
- English language proficiency test scores and language proficiency interviews, as appropriate
- Appropriate quantitative readiness

Assuming a July 2026 start to the program, we propose three or four application deadline dates for the program:

- Mid-October 2025
- Mid-January 2026
- Beginning of March 2026
- Mid-April 2026

We maintain the potential to have a small number of rolling admissions after the mid-April 2026 deadline. Students will be notified after each round whether they have been accepted, waitlisted, or denied.

### Student Support

Students will consistently be supported from the time they begin to consider the MBCS program through post-graduation. This will require adding approximately 11 new staff FTEs to support the program:

- Admissions – 2.5 FTE (2 Fuqua; 0.5 Nicholas)
- Program Administration and Coordination – 3 FTE (1.5 Fuqua, 1.5 Nicholas)

- Career Development – 3 FTE (2 Fuqua, 1 Nicholas)
- Registrar – 0.33 FTE (Fuqua)
- IT – 1 FTE (Fuqua)
- Financial Aid – 1 FTE (Fuqua)
- Student Accommodations – 0.5 FTE (Fuqua)

We expect most of the new FTEs to be physically located at Fuqua. Nicholas will also have staff connections to the program. Student programming (social and academic) will be intentionally designed to ensure students spend time on both campuses. Ideally, the design of the course schedule will facilitate students spending time at both campuses, as well as programming and co-curricular activities and workshops that will be intentionally designed to ensure engagement at both Fuqua and Nicholas.

International students are expected to make up approximately 50% of enrolled students. Both Fuqua and Nicholas have extensive experience supporting international students and we plan to support the MBCS students with a combination of dedicated and centralized resources. More centralized resources include the admissions team on the front end to interface with Duke Visa Services (DVS) as students work on their I-20s. Program staff will primarily support the student experience at Fuqua and help guide international students as they prepare to work with DVS on Optional Practical Training (OPT) paperwork. The International Programs Office at Fuqua will also serve as a centralized resource to support community, belonging, and programming across programs at Fuqua, including the new MBCS program. The program can leverage Nicholas' Communications Studio, with a modest addition in staffing, to support non-native English speakers through structured English language support tailored to their needs.

#### Career Services

As part of our review of the potential employer interest in graduates of the MBCS program, we spoke with board members and alumni at both schools as well as contacts with deep industry connection to the business, climate, and sustainability space. It was clear there is strong support for a program that would provide talent that could apply business skills in the context of climate and sustainability. BCG experts, Rich Lesser (BCG Global Chair) and Elizabeth Lyle (BCG Managing Director and Partner), reinforced many of the points extracted from the BCG report referenced previously, where firms desperately need talent with expertise in applying business skills in a climate and sustainability role. Feedback from focus groups held with NSOE alumni, supported the value of a degree that prepares graduates for entry-level positions with both business and environmental knowledge. These graduates should be prepared to serve in much needed generalist roles within organizations, and to support conversations and programs related to ESG, target setting and forecasting, compliance, climate risk assessment, strategy development, policy analysis, marketing, etc.

MBCS students' expertise and backgrounds in both business and climate science will be highly desired by recruiters. Furthermore, both Fuqua and Nicholas have experience and expertise that will be valuable in helping students with their career exploration. However, it will be critical

for students to have a primary home for career development and services. Thus, students will access their primary career development and support at Fuqua and will have augmented support located at Nicholas via a dedicated MBCS Career Pathways director (one FTE), providing a set of required career exploration workshops and focused career coaching in the areas of environment, science, community engagement, and soft skills. Fuqua will add two FTE career coaches and recruiters to the Fuqua Career Management Center (CMC) to support the MBCS students.

We expect students to begin recruiting as early as the fall, but expect recruiting to be more focused and heavier in the spring, before graduation. The design of the program includes integrated offerings (e.g., Climate Finance, Climate Marketing) which provides students quick immersion into the business issues of climate that provide knowledge that can be leveraged in interviews. In addition, the program's two-term practicum for students to gain deep applied experience before graduating will also help students in their job search.



## VII. Program Evaluation

The expected targets and benchmarks for program evaluation are listed below. Metrics will be tracked to respond to any identified deficiencies or issues.

### Program Interest and Relevance

*Table 5: Potential Targets and Metrics Capturing Program Interest and Relevance*

	Class of 2027	Class of 2028	Class of 2029	Class of 2030	Class of 2031
Applications	400	400	600	800	800
Selectivity	50%	50%	50%	50%	50%
Yield	51%	51%	51%	51%	51%
Retention/Graduation	98%	98%	98%	98%	98%
Enrollments	100	100	150	200	200

### Inclusion of Diversity Perspectives

Duke, Fuqua, and Nicholas are global institutions that believe in the benefits of leveraging the diverse experiences of students, faculty, and staff. Learning outcomes can be enhanced through access to diverse perspectives, and we will seek all forms of diversity through recruitment efforts. Figure 2 below presents snapshots of how we view diversity in the MMS: Foundations of Business program, which is illustrative of a starting point for how we will measure, track, and report diversity in the MBCS program.

*Figure 2A: Sample Metrics Related to Enrolled Student*

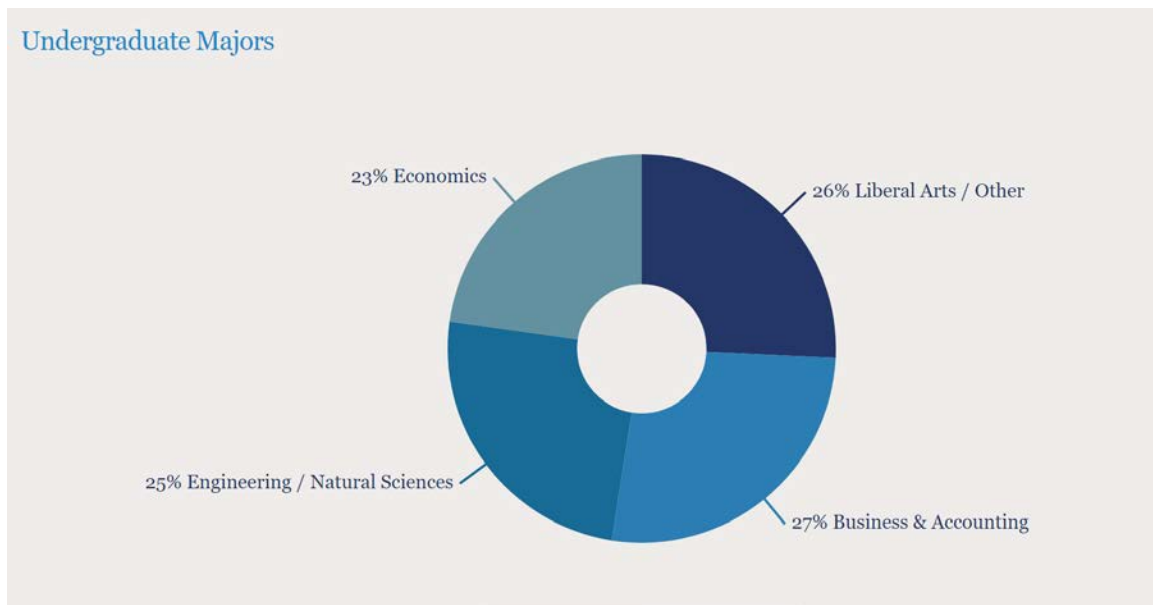


Figure 2B: Sample Metrics Related to Enrolled Student

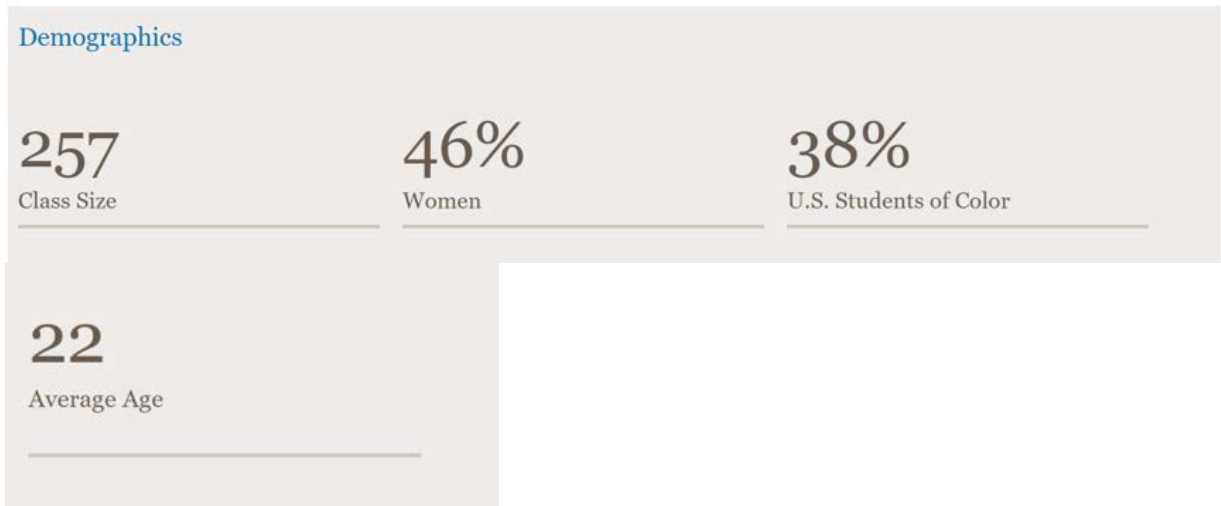


Figure 2C: Sample Metrics Related to Enrolled Student



Figure 2D: Sample Metrics Related to Enrolled Student

Race & Ethnicity		
	PERCENTAGE	NUMBER
RACE/ETHNICITY	FEDERAL GUIDELINES REPORTING <sup>1</sup>	MULTI-DIMENSIONAL REPORTING <sup>2</sup>
American Indian or Alaska Native	0%	1%
Asian American	19%	23%
Black or African American	6%	8%
Hispanic or Latinx	7%	7%
Native Hawaiian or Other Pacific Islander	0%	0%
White	61%	72%
Two or more races	6%	-
Chose Not to Indicate	1%	1%

### Applicant and Student Quality

Student quality is multifaceted, and we will rely on a holistic review of the application to provide signals of incoming student quality. GPA and standardized test scores are more easily measured and compared. Other indicators may provide a signal for communication skills, leadership, grit, engagement, etc. Some indicators as part of the application review may include:

- GPA, coursework
- Undergraduate experiences (internships, research, etc.)
- Standardized exam scores (GMAT, GRE, EA, English language proficiency)
- Essays (content and quality)
- Recommendations
- Interview

### Financial Health of the Program

Tracking program administration and teaching contribution will be important for contribution splitting between Nicholas and Fuqua and will be assessed at least annually. Any cost or revenue variances from the pro-forma financial model should be quickly identified and addressed.

## Career Success

First destination employment reports will be produced annually, similar to the reports created for other programs (e.g., [Fuqua](#), [Nicholas](#)).

Career success metrics will include:

- Percentage of job seekers employed at graduation, 3 months post-graduation, and 6 months post-graduation
- Starting salary
- Employers
- Position titles
- Geographic employment

## Third-Year Review

Fuqua and Nicholas will jointly review the benchmarks and metrics discussed above along with any relevant qualitative input on the program as part of a third-year review of the program.

## Learning Assessment Plan

After launch, a Learning Assessment Plan will be developed. In collaboration with faculty, each course will create specific metrics and targets. An example of the format and rough detail in a learning assessment plan for the program is reflected in Table 6 below and more fully in Appendix D.

Table 6: Sample from Mock Learning Assessment

Goal	Outcome	Course	Proposed Measures/Targets (27-31)	2027
<b>Teamwork and Ethics</b>	Our graduates demonstrate exceptional teamwork skills and exhibit ethical considerations for decision making to help effectively achieve organizational goals.	Management and Organizations	X% of students correctly answer embedded question on the final exam.	Y%
			X% of teams meet or exceed expectations on team assignment exercises	Y%
<b>Core Business, Strategy, and Quantitative Ability</b>	Our graduates possess a strong knowledge of core business theory, strategy development, quantitative analysis and data interpretation.	Economics	X% of students meet or exceed established expectations (X% or higher) on the final exam.	Y%
		Climate Finance	X% of students meet or exceed established expectations (X% or higher) on final exam.	Y%
		Climate Decisions Models	X% of students meet or exceed expectations on individual assignment exercises	Y%
<b>Core Knowledge About Climate and Sustainability</b>	Our graduates demonstrate a strong ability to access, synthesize, interpret, and analyze data using statistical and computational techniques.	Carbon Reporting and Accounting	X% of students meet or exceed expectations on individual assignment exercises	Y%
		Climate Economics and Policy	X% of students meet or exceed expectations on individual assignment exercises	Y%
		Climate and Energy	X% of students meet or exceed established expectations (X%) on the final exam.	Y%
<b>Integrated Analyst Level Skills</b>	Our graduates demonstrate a strong ability to effectively evaluate, interpret, synthesize, and report information across a broad range of media. More specifically, they are able to integrate business, climate, and sustainability concepts and effectively create and communicate the issues and potential solutions.	Practicum	X% of students meet or exceed expectations (X% or better) in the Practicum final deliverable.	Y%

\*Draft includes generic course names.

\* Course content will need to be finalized before a Learning Assessment Plan can be created.

## VIII. Risk Assessment

Potential risks associated with launching this degree are limited and should not prohibit moving forward. The risk of low enrollment is the primary risk that would lead to the potential for negative contribution. Additionally, the potential risk to the Duke, Fuqua and Nicholas brands, to overutilization of Duke resources, and to cannibalization of existing resources are presented below. Table 7 outlines the perceived likelihood, severity, and impact of the identified risks.

### Duke, Fuqua, and Nicholas Brand Risk

There is a potential brand risk in making a major commitment with poor execution in a way that is discordant with Duke's brand. Mitigating factors to this risk include proven experience by both schools in related degrees as well as the creation of successful programs in the past (e.g., MMS, DEL-MEM, iMEP). Moreover, we have faculty who are well-versed in the intersection of climate and business, and the commitment to climate and business will be brand-enhancing for Duke, Fuqua, and Nicholas.

### Use of Duke Resources

We are advocating for the approval of a new joint degree program at a time when the number of master's programs at Duke has increased significantly. This increase in programs and graduate students raises a potential question and concern about the University's long-term ability to appropriately provide resources to meet the needs of this growing student population. To address these concerns, we specifically consider the potential draw on resources that these additional students may impose on Duke more broadly. Our financial plan assumes that Fuqua and Nicholas will manage and pay for the incremental costs of admissions, student life, career management, financial aid, IT, Fuqua library services, marketing and communications, and administration of the new program. Students will not expect Duke to provide residential housing and will live off campus.

We also expect the new MBCS students to pay for health services through the University-determined health fee. With that, students will contribute to covering the cost for CAPS and other services that may increase with the addition of new students. In addition, the program will pay allocated costs to the University, currently 21%, after a short start-up period. As noted above, the program will have a short-term three-year waiver of allocated costs and following that, the program is expected to quickly provide significant contributions to Duke through allocated costs, starting in the fourth year of full operations. We expect the allocated costs paid to be used to cover incremental costs that the two schools do not bear directly, which may include costs associated with MBCS student use of Duke buses and access to the broader Duke University library system. Fuqua and Nicholas will pay for and manage the career development activities, but would also engage with university career services, as appropriate, to identify mutually agreeable arrangements to collaborate when helpful.

## Cannibalization of Existing Programs

While there is a risk of cannibalization to existing programs at Fuqua and Nicholas, they have been considered and concluded there will be little risk to the other programs' abilities to continue to attract and yield strong cohorts of students. That conclusion is based on the differentiation we expect between the new program and existing programs, and the expectation that the new degree will bring a new pool of applicants to Duke. We previously presented Table 2, which provided an outline of business and environment related degrees at Fuqua and Nicholas. In that table, key differentiating factors between existing programs and the new joint degree are presented. Those differentiating factors are: time and financial investment to complete the degree; the extent of immersion in Business and Management; the extent of immersion in Climate and Sustainability; the amount of post-undergraduate work experience; and the first post-grad employment destination.

As potential applicants consider Duke for the new business and climate joint degree, we expect there may be some initial consideration for Fuqua's MMS degree, Nicholas's MEM degree with a business and environment concentration, and the current dual MEM/MBA degree between Fuqua and Nicholas. We expect that students will be able to quickly differentiate these programs from the new MBCS degree and briefly discuss each below.

While the MBCS degree will align with aspects of the Fuqua MMS degree, including preparation for analyst-level roles in business that require little to no work experience, the MBCS's climate focus will be of less interest to the student seeking the breath of a general management master's degree. The business elements of the MBCS will draw some applications from the MMS applicant pool but we expect the potential cannibalization of MMS to be small relative to the large pool of applications we continue to expect for MMS.

The Nicholas Schools' reputation as one of the first environmental schools, and a leader in the field, is a draw for those interested in pursuing graduate school. The business and environment concentration within the MEM degree aligns with those who may consider the MBCS because of the MEM-BE's focus on environment, climate, sustainability, and management. However, there are clear differentiators between the programs, including program duration, and the limited capacity of the BE program. Due to resource constraints, the BE cohorts are limited to 20-30 students (with BE as the primary concentration). Further, the BE curriculum covers a breadth of topics to help organizations implement environmentally sustainable business practices with the ability to specialize amongst a variety of elective courses and to focus and gain depth in an environmental concentration (coastal and marine systems, ecotoxicology and environmental health, energy, or terrestrial and freshwater environments). Ultimately, applicants will need to consider their career trajectory as part of their educational pursuits.

The dual MEM/MBA degree aligns well with the focus of the new MBCS degree on business and climate. However, little cannibalization is expected as the degrees target very different populations based on career stage, expected post-graduate role, and depth of academic

development. Further, the dual degree is a three-year degree (vs. one year), which makes it much more expensive, financially and in terms time commitment and opportunity cost.

We do not believe there are any real concerns about cannibalizing Duke programs other than those mentioned, and we believe the potential cannibalization of other Fuqua and Nicholas programs is not large and can be mitigated. With a clear positioning of these programs, purposeful recruiting, and careful management of the overall applicant pool, we can guide students to apply to the program that best meets their needs.



Table 7: Outline of Potential Risks

Risk Description	Likelihood of Risk Occuring	Impact if Risk Occurs	Severity of Risk	Discussion and Mitigating Actions
Enrollments do not develop as forecasted for various reason.	Low	Low	Low	Assuming the initial startup costs are covered by a donor, most other costs can be scaled to enrollments and revenues. This assumes a short term lag in TT hiring (possibly 2 years) until there is evidence that the program will scale. With scaled personnel, the program can be financially positive with 1 section of around 50 students or 2 sections of around 90 students.
Enrollment and related financial risk connected to international students: <i>- Political tension</i>	Low	Medium	Low	We expect international students, including Chinese students, to be important to program success. In addition to recruiting domestic students, recruiting should be broad and try not to rely on students from any specific country too heavily.
Enrollment and related financial risk connected to international students: <i>- US policy tightening on OPT and H1B and related US attitude toward isolation</i>	Low	Medium	Low	The appeal for the majority of international students is access to work in the US post-graduation. Domestic recruiting strategies in other programs generally require more scholarship money to yield.
Enrollment and related financial risk connected to international students: <i>- Severe currency devaluations, making US education far more expensive and putting student ROI in question</i>	Low	Medium	Low	The dollar strengthened through 2022 before weakening a bit last year. A strong dollar makes US education more expensive for international students paying tuition and expenses with their home currency. Most students borrow in US dollars and the risk here is partially mitigated by strong relationships with lending partners. Lending partners are beginning to tighten loans to international students but the effect is greatest in programs longer than one year. International students who can work in the US for an extended period will have their debt and income both in US dollars. There is default risk (primarily borne by our lending partners) for graduates returning to work in a country with a weaker currency.
Enrollment and related financial risk connected to: <i>- COVID pandemic resurgence that reduces travel mobility and threatens student, faculty, and staff health and safety</i>	Low	Medium	Low	Duke has coordinated well with us in the past to address safety and health on campus through vaccination access and requirements along with extensive availability of testing. Fuqua Multimedia has extensive expertise that will allow us to move to hybrid or online delivery of classes for periods of time as necessary.
Enrollment and related financial risk: <i>- Employment market weakness due to US and/or global recession could affect hiring out of business schools, which could reduce the attractiveness of business school</i>	Medium	Low	Low	While a weak economy could contribute to a more difficult recruiting experience for our graduates, there is a natural counter to this with a reduced opportunity cost when applying and enrolling to business school. Recent graduates with fewer perceived opportunities may use a recession to further invest in education and hope for a better market when they graduate with their master's degree.
Enrollment and related financial risk for: <i>- specific risk that climate and sustainability become (further) politicized in a way that prevents organizations from maintaining climate commitments and hiring connected to those commitments</i>	Low	High	Low	The political climate in the US and worldwide could turn in a way that prevents or limits organizations' incentives or abilities to follow through on climate commitments. Hiring demand would not materialize as planned and enrollment could be threatened. Our belief is that regardless of the political climate, organizations are committed to climate related investment and management and demand for graduates will, at most, be marginally affected.

Table 7 (continued): Outline of Potential Risks

Risk Description	Likelihood of Risk Occuring	Impact if Risk Occurs	Severity of Risk	Discussion and Mitigating Actions
Threat to Duke, Fuqua, and Nicholas brand as a top school if we fail to deliver a quality program and achieve student employment success	Low	High	Low	The risk of a damaging launch and experience appears low. Both schools have expertise in programs like this and there is a commitment to deliver a quality program.
Adding more graduate students could stress the availability of Duke support resources	Low	Medium	Low	As discussed, Our financial plan assumes that Fuqua and Nicholas will manage and pay for the incremental costs of admissions, student life, career management, financial aid, IT, school library services, marketing and communications, and administration of the new program. In addition, new students will pay the health fee. After a short launch period, the program will also provide funding from allocated costs to cover University provided services.
Risk of cannibalization of other Duke, Fuqua, and Nicholas programs	Low	Medium	Low	The risk of a negative impact on new programs is low. While aspects of some existing programs overlap with the positioning of the new degree, the programs will be differentiated (as discussed) and the applicant pool for the most aligned program (MMS) is large.

## Appendix

## **NSOE Courses**

### *Climate Science*

This course examines the components of the climate system: observed climate change, concept of energy balance, basic circulation of the atmosphere and ocean, introduction to climate models, sample applications of climate models, interactions between the atmosphere/ocean/and biosphere, land surface, cryosphere (snow and ice), and chemistry of the atmosphere.

### *Climate Impacts*

Course covers the effects of climate change on humans, the economy, and natural systems, with an emphasis on interactions between these domains and the unequal social and geographic distribution of negative impacts. The course will also address climate-related risks to business operations and supply chains, as well as potential adaptation measures.

### *Climate and Energy*

This course introduces the energy system from a climate perspective, examines how the ways in which we supply and use energy affect greenhouse gas emissions, and explores low-carbon alternatives. The class approaches the mitigation challenge by discussing how the energy system itself is organized: how we got to where we are today, how the existing system operates, what might be feasible going forward, and how we can leverage the forces driving change for a more sustainable future. An energy system perspective is essential to this understanding, and therefore frames the course.

### *Climate Reporting and Carbon Accounting*

This course introduces students to accepted standards and accounting frameworks for measuring and reporting greenhouse gas emissions associated with business operations. Topics include development of greenhouse gas inventories, U.S. and international regulatory requirements, and reporting.

### *Climate Economics and Policy*

This course explores the economic characteristics of the climate change problem, assesses national and international policy design and implementation issues, and surveys the economic tools necessary to evaluate climate change policies. Discussion-oriented requiring high degree of student participation. Course objectives are increased comprehension of economic aspects of climate change and ability to apply tools of economic analysis to climate policy and the responses of firms and households to it.

### *Practicum*

The two-term practicum will provide an extended period for students to engage deeply in the application of climate and business and gain applied professional experience ahead of graduation. The practicum is designed to assist students in developing team-based business and project management skills through the application of content learned in the MBCS

program, to real challenges facing business and other community-based organizations. More specifically, in the context of business and climate, the course emphasizes development of the following skills: identifying and understanding the needs of an organization; engaging with a client to develop a project plan focused on solving the client's problem; researching and applying program content to complete the project; gathering, analyzing, and synthesizing information; communicating with the client to move the project forward, to summarize findings, and to make recommendations. Projects will be sourced domestically and internationally and will be scoped to fit the two term (approximately 12 week) timeframe. We will match students to projects based on student interest, and faculty will serve as advisors and provide project oversight.

## **Fuqua Courses**

### *Decision Analytics for Business and Sustainability*

This course equips students with formal analysis techniques to quantify uncertainties, extract useful knowledge from data, and improve the quality of decision-making in complex problems arising in business and sustainability applications. Techniques include decision tree analysis, linear regression models, Monte Carlo simulation, and optimization.

### *Accounting Information for Sustainability*

The course provides a foundation for understanding and using accounting information, starting with basic concepts underlying financial reports prepared to inform external users such as investors and lenders. Building on those basic concepts, students will be introduced to the use of accounting information for internal decision-making and performance evaluation. The course will focus on climate-related applications, such as incorporating climate and sustainability considerations in operating and investing decisions. Students will also develop the ability to communicate effectively in financial terms to both internal and external users of accounting information.

### *Climate Finance*

The course in Climate Finance covers core finance concepts with a focus on their application to climate-related challenges. It introduces a set of tools for analyzing the investment and financing decisions of individuals and firms, including time value of money, risk, the cost of capital, determining cash flows, net present value (NPV) decision-making, and firm valuation. These ideas are applied to climate finance-relevant problems both related to mitigation and to adaptation. These include how to value investments in clean technologies, the role of financial institutions in financing the green transition, and how to quantify and manage transition and physical risks. The basic theoretical underpinnings of the various topics are discussed as they are necessary for competent financial analysis. Because of the practical importance of the material and as an illustration of the relevant theory, several examples and cases are discussed throughout the course.

### *Marketing and the Environment*

In this class we will start from the position that the environment is a scarce and valuable resource. In the first half of class, we will explore the environment through the lens of everyday consumers. We will investigate consumer views on a wide variety of environment related issues such as consumption of scarce resources, reactions to being told you cannot consume scarce resources, and even whether the environment “should” be managed. In the second half of class, we will shift the lens to the side of the firm. We will put ourselves in the position of a leader with a fiduciary responsibility to their shareholders. We will learn how to put together a marketing strategy that both (i) meets consumer needs better than our competitors can, (ii) maximizes the firm’s long-term profitability and (iii) carefully considers the use of an irreplaceable scarce resource.

### *Sustainable Operations*

This course equips students with the critical knowledge and tools necessary to transform businesses through the integration of sustainable practices into firm operations. This transformation aims not only to boost profitability but also to ensure a positive environmental and social impact. The course is composed of two parts which, collectively, serve to build a foundation of operations knowledge and discuss how sustainability can be incorporated into a firm’s operations. The first part introduces the fundamentals of operations and supply chain management, exploring the importance of addressing long-term capacity issues, managing process variability, and optimizing inventory to balance demand and supply in business processes. The second part illustrates the critical role of operations in achieving a firm’s sustainability goals and, utilizing life cycle assessment as a pivotal tool, examines sustainability challenges across various stages of the supply chain. Students will engage in an in-depth analysis of sustainable material sourcing, strategies for reducing carbon footprints, the integration of green logistics, and the implementation of circular business models.

### *Climate and Strategy*

This course covers the principal elements of how business is affected by climate change, and the role that business practices have in limiting or contributing to potential changes. This is done in the context of how to identify business opportunities in dynamic competitive environments, including an emphasis on the role of climate change. Students will develop the skills necessary to be an effective strategy analyst as part of a business addressing climate change. The course tackles the complexity of analyzing competition in this era of globalization and changing firm boundaries, as well as assesses strategy under increasing uncertainty. Develops strategic thinking by learning the concepts, models, and tools of strategic analysis and by applying them to competitive situations. Develops the capability to assess a firm's strategic position with respect to rivals, the larger industry, and customers given the firm's internal resources and capabilities.

### *Leading for Sustainability*

Leading for sustainability will cover basic skills for managing and leading others, including motivating others, designing incentive systems, leading teams, and making effective decisions. These topics will include applications to sustainability, such as creating effective

internal metrics for measuring and rewarding sustainable behavior. The course will also examine the challenges of leading organizations to incorporate and execute on sustainable goals. The course will analyze the dynamics of power and politics in organizations, the challenges of polarization among stakeholders, and strategies for leading organizational change.

### **NSOE and Fuqua Joint Course**

#### Climate Innovation

The course goal is to introduce how organization can respond to climate change through innovation. Innovation could change new strategies, new business models or practices, as well as product and service development. This course will be developed over the course of the year with the Fuqua and Nicholas faculties.

## Appendix B: Backgrounds and Bios of Key Faculty Participating in the Program

### Nicholas School of the Environment

#### *Climate Science*

- Prasad Kasibhatla is a Professor of Environmental Chemistry and the Senior Associate Dean of Research and Doctoral Programs at the Nicholas School of the Environment. Kasibhatla's research seeks to develop a fundamental and quantitative understanding of the factors that determine the chemical composition of the atmosphere, with a particular interest in delineating natural and anthropogenic impacts on the chemical composition of the atmosphere, and in exploring the potential for these impacts to affect natural ecosystems. This research involves the use of numerical models in conjunction with remote and in situ measurements of atmospheric composition.

#### *Climate Impacts*

- Brian McAdoo is an Associate Professor at the Nicholas School of the Environment. McAdoo studies the effects of disasters triggered by natural hazards. How are humans impacting the physical systems that keep us alive, and how are marginalized populations specifically affected? Current research projects in Nepal (earthquakes, landslides and road development) as well as Borneo and Brazil (deforestation, ecosystem services and community health) seek to apply a Planetary Health framework to understand how coupled human-environment systems and geohazards interact with the ultimate goal of informing community resilience and reducing environmental suffering.

#### *Climate and Energy*

- Timothy Johnson is a Professor of the Practice of Energy and the Environment and Senior Associate Dean for Academics at the Nicholas School of the Environment. Johnson's teaching and research address topics at the intersection of energy system planning, design of the built environment, and natural resource management, with a particular interest in how we can leverage interactions among these areas to improve environmental quality and human health. This work is inherently interdisciplinary, requiring an understanding of current and emerging energy resources, technologies, and patterns of end-use demand, as well as the demographic, economic, and policy factors driving change across the energy system. Pursuit of these interests has relied on close collaborations with other researchers, including agricultural production economists, ecologists, planners, and engineers. Current activities involve studies of how the built environment impacts energy consumption and the analytical needs of regional energy planning.

#### *Climate Reporting and Carbon Accounting*

- Holly Emerson is an Executive in Residence at the Nicholas School of the Environment. Emerson is a corporate sustainability professional with over 20 years of industry experience. Prior to joining the school's faculty, Emerson helped develop and lead sustainability initiatives at



numerous Fortune 500 companies, including as sustainability manager and analyst at Ingersoll Rand; enterprise climate impact leader at Trane Technologies; and, most recently, as senior director of global environment and social sustainability at Johnson Controls. She holds a Master of Business Administration degree from Duke's Fuqua School of Business, and a bachelor's degree in mechanical engineering from the University of Pennsylvania.

- Jesko Von Windheim is the Lynn Gorguze-Scott Peters Professor of the Practice of Environmental Entrepreneurship & Innovation at the Nicholas School of the Environment. Dr. von Windheim is an entrepreneur who has served in a number of executive roles in the private sector and has founded a series of start-up companies. In 2012, he joined the Nicholas School as Professor of the Practice in Entrepreneurship, became the Lynn Gorguze-Scott Peters Professor of the Practice, Innovation & Entrepreneurship in 2017, and from 2015 to 2019 served as Associate Dean for Innovation and Entrepreneurship. In 2021, Dr. von Windheim became chair of the Business and Environment (BE) MEM concentration and led the program through a challenging period of rapid growth. Dr. von Windheim has a Ph.D. in Physical Chemistry from the University of Guelph, and subsequently earned an MBA from the University of North Carolina at Chapel Hill.

### *Climate Economics and Policy*

- Martin Smith is the George M. Woodwell Distinguished Professor of Environmental Economics at the Nicholas School of the Environment. Smith studies the economics of the oceans, including fisheries, marine ecosystems, seafood markets, and coastal climate adaptation. He has written on a range of policy-relevant topics, including economics of marine reserves, seasonal closures in fisheries, ecosystem-based management, catch shares, nutrient pollution, aquaculture, genetically modified foods, the global seafood trade, organic agriculture, coastal property markets, and coastal responses to climate change. He is best known for identifying unintended consequences of marine and coastal policies that ignore human behavioral feedbacks. Smith's methodological interests span micro-econometrics, optimal control theory, time series analysis, and numerical modeling of coupled human-natural systems. Smith's published work appears in *The American Economic Review*, *Nature*, *Science*, *Proceedings of the National Academy of Sciences*, *Journal of Environmental Economics and Management*, *the Review of Economics and Statistics*, and a number of other scholarly journals that span environmental economics, fisheries science, marine policy, ecology, and the geo-sciences.

### *Fuqua School of Business*

#### *Accounting Information for Sustainability*

- Bill Mayew is the Martin L. Black Jr. Distinguished Professor of Business Administration at the Fuqua School of Business at Duke University. Professor Mayew received his Ph.D. in Business Administration (Accounting) from the University of Texas at Austin in 2006 and has been on the Fuqua faculty since graduation. He previously worked in accounting and financial reporting assurance at Ernst & Young. Bill studies managerial communication of firm performance in general, with much of his research falling into the following three topical areas: (1) factors that shape voluntary earnings conference call communications and the effects of those

communications, (2) the influence of personal traits and social forces on managerial communication, and (3) the determinants and consequences of managerial communication through mandatory financial reports.

### *Leading for Sustainability*

- Rick Larrick is the Hanes Corporation Foundation Professor and a Professor of Management and Organizations at Duke University's Fuqua School of Business. He designed and teaches the core Fuqua MBA course on leadership and management in the daytime program, entitled "Leadership, Ethics, and Organizations," and has taught MBA and executive courses on leadership, negotiation, and power and politics in organizations. Rick is a fellow of the Association for Psychological Science and the incoming President of the Society for Judgment and Decision Making. Rick's research interests include individual, group, and organizational decision making. Specific areas of research examine environmental decision making, negotiation, group decision making, goal setting, and "debiasing" (techniques for helping people make better decisions). He has two areas of research that are his current focus: Environmental decisions and "the wisdom of crowds."

### *Sustainable Operations*

- Kevin Shang is the Joseph J. Ruvane, Jr. Distinguished Professor of Operations Management at the Fuqua School of Business, Duke University. Kevin's expertise is in supply chain management and inventory control. His research mainly focuses on developing simple and effective inventory policies for supply chain systems. Professor Shang also conducts research in the interface of operations and finance and renewable energy systems. His research has appeared in several leading management journals, including Management Science, Manufacturing and Service Operations Management, Operations Research. Several of his papers received research awards from professional societies. He has served as an editorial board member for several leading academic journals.

### *Marketing and the Environment*

- Gavan J. Fitzsimons is the R. David Thomas professor of marketing and psychology at Duke University's Fuqua School of Business. His research focuses on understanding the ways in which consumers may be influenced without their conscious knowledge or awareness by marketers and marketing researchers, often without any intent on the part of the marketer. His work has been published in numerous academic journals such as the Journal of Consumer Research, Journal of Marketing Research, Marketing Science, Management Science, Organizational Behavior and Human Decision Processes, the Journal of Personality and Social Psychology, and Psychological Science. His ideas have also been featured in many popular press outlets such as NPR, CNN, MSNBC, the New York Times, Wall Street Journal, Psychology Today, Oprah Magazine and Time Magazine, amongst many others.

### *Climate Finance*

- Alon Brav is the Bratton Family Distinguished Professor of Finance at the Fuqua School of Business, Duke University. His current research focuses on corporate governance, shareholder voting, and hedge fund activism. He currently teaches Financial Management in the Weekend Executive MBA program. He has taught Financial Management in the Global Executive MBA and Master of Management programs and an Investments and Corporate Restructuring electives in the Daytime MBA program.

### *Decision Analytics for Business and Sustainability (three possible instructors)*

- Alexandre Belloni is a Professor of Decision Sciences at the Fuqua School of Business at Duke University. Professor Belloni's research interests are on statistics and optimization and on their applications to Economics and Business. His current research focuses on developing and analyzing methods for model selection in Econometric problems, and for solving Mechanism Design problems. He became 2014-2016 F.M. Kirby Research Fellow, and received the 2007 Young Researchers Competition in Continuous Optimization Award and the second prize at the INFORMS 2006 George Nicholson Student Paper Award. He has received a grant from the National Science Foundation and has held visiting appointments in other prestigious institutes. He has consulted with the electrical energy industry in Brazil. He teaches the core MBA Statistics course and an elective course on Data Analytics.
- David B. Brown is the Snow Family Business Professor in Decision Sciences and the Faculty Director for the Center for Energy, Development and Global Environment (EDGE) at Duke University's Fuqua School of Business. At Fuqua, he has taught Decision Models, Data Analytics and Applications, Probability and Statistics, and Convex Optimization, and he has won teaching awards in multiple programs.
- Peng Sun is a JB Fuqua Professor in the Decision Sciences area at the Fuqua School of Business, Duke University. He researches mathematical theories and models for resource allocation decisions under uncertainty, and incentive issues in dynamic environments. His work spans a range of applications areas, from operations management, economics, finance, marketing, to health care and sustainability. He serves a Department Editor at Management Science and an Associate Editor at Operations Research, two leading academic journals of the profession of Operations Research and Management Science. At the Fuqua School, Professor Sun has taught MBA core course Decision Models and elective course Strategic Modeling and Business Dynamics, and PhD course Dynamic Programming and Optimal Control.

### *Climate and Strategy*

- Aaron Chatterji, Ph.D. is the Mark Burgess & Lisa Benson-Burgess Distinguished Professor at Duke University's Fuqua School of Business. He previously served as a Senior Economist at the White House Council of Economic Advisors (CEA) where he worked on a wide range of policies relating to entrepreneurship, innovation, infrastructure and economic growth. Aaron's research and teaching investigate some of the most important forces shaping our global economy and society: entrepreneurship, innovation, and the expanding social mission of business.

## Appendix C: Financial Projections

Table AC1: 5-year Financial Projections – Base Case

BASE CASE: Assumes Growing Demand, with 2 Sections in 2027 and 2028; 3 Sections in 2029 and 2030

Fuqua/Nicholas - Climate/Business Joint-Degree	2026	2027	2028	2029	2030
<b>Assumptions:</b>					
Students		100	100	150	200
Tuition		\$ 68,500	\$ 70,898	\$ 73,379	\$ 75,947
Tuition Increase			3.5%	3.5%	3.5%
Application Fee	\$ 125	\$ 125	\$ 125	\$ 125	\$ 125
Applications	400	400	600	800	800
Deposit		\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
Deposit Forfeitures		2	3	4	5
Scholarships		15%	15%	15%	15%
Sections		2	2	3	3
# Courses taught by Faculty (all Fulltime)		15	15	15	15
Space Cost per Classroom		\$ 400	\$ 412	\$ 424	\$ 437
# Days Classrooms Required [Wed/Sat]		79	79	79	79
Effort Increase			4%	4%	4%
Non-effort Increase			3%	3%	3%
Events, Workshops, Training per Student		\$ 1,500	\$ 1,545	\$ 1,586	\$ 1,628
University Allocated Costs	21.0%	0.0%	0.0%	0.0%	21.0%
<b>Income:</b>					
Tuition		\$ 6,850,000	\$ 7,089,750	\$ 11,006,837	\$ 15,189,435
Application Fees (assume 25% receive waiver)	\$ 37,500	\$ 37,500	\$ 56,250	\$ 75,000	\$ 75,000
Deposit Forfeitures		\$ 4,000	\$ 6,000	\$ 8,000	\$ 10,000
Less: Scholarships		(1,027,500)	(1,063,463)	(1,651,026)	(2,278,415)
<b>Total Income</b>	<b>37,500</b>	<b>5,864,000</b>	<b>6,088,538</b>	<b>9,438,811</b>	<b>12,996,020</b>
<b>Expenses:</b>					
Personnel Costs (Faculty, Staff, TAs) + Course Dev	2,205,975	5,131,148	5,325,544	7,922,809	8,223,441
Classroom Space Allocation		63,200	65,096	100,573	103,591
Events, Workshops, Training		150,000	154,500	237,884	325,596
Marketing/Branding/Website/Collateral/Blog/ Admin Costs	125,000	75,000	75,000	75,000	75,000
University Allocated Costs	489,505	-	-	-	1,811,048
<b>Total Expenses</b>	<b>\$ 2,820,480</b>	<b>\$ 5,419,348</b>	<b>\$ 5,620,140</b>	<b>\$ 8,336,266</b>	<b>\$ 10,538,675</b>
<b>Contribution (Annual)</b>	<b>\$ (2,782,980)</b>	<b>\$ 444,652</b>	<b>\$ 468,398</b>	<b>\$ 1,102,545</b>	<b>\$ 2,457,344</b>
<b>Contribution (Cumulative To Date)</b>	<b>\$ (2,782,980)</b>	<b>\$ (2,338,328)</b>	<b>\$ (1,869,930)</b>	<b>\$ (767,385)</b>	<b>\$ 1,689,960</b>
<b>Fuqua Contribution (50/50 split)</b>	<b>\$ (1,391,490)</b>	<b>\$ 222,326</b>	<b>\$ 234,199</b>	<b>\$ 551,273</b>	<b>\$ 1,228,672</b>
<b>Nicholas Contribution (50/50 split)</b>	<b>\$ (1,391,490)</b>	<b>\$ 222,326</b>	<b>\$ 234,199</b>	<b>\$ 551,273</b>	<b>\$ 1,228,672</b>

### Personnel Costs (Faculty and Staff):

15 classes per year taught by fulltime faculty x # sections (30 classes at 2 sections; 45 classes at 3 sections).

2.5 FTE – Admissions (2 Fuqua; 0.5 Nicholas)

3 FTE – Program Administration and Coordination (1.5 Fuqua, 1.5 Nicholas)

3 FTE – Career Development (2 Fuqua, 1 Nicholas) (going to 4 (+1) in 2029)

0.33 FTE – Registrar (Fuqua)

1 FTE – IT (Fuqua)

1 FTE – Financial Aid (Fuqua)

0.5 FTE – Student Accommodations (Fuqua)

Allocation for TA expense per section of each course = \$1,000

Classroom space allocation covers utilities, HVAC, technology support, cleaning, etc.

Table AC2: 5-year Financial Projections –Low Enrollment Breakeven Case

LOW DEMAND BREAKEVEN: Assumes 1 Section in 2027, 2028, 2029, and 2030

Fuqua/Nicholas - Climate/Business Joint-Degree	2026	2027	2028	2029	2030
<b>Assumptions:</b>					
Students		54	54	54	66
Tuition		\$ 68,500	\$ 70,898	\$ 73,379	\$ 75,947
Tuition Increase			3.5%	3.5%	3.5%
Application Fee	\$ 125	\$ 125	\$ 125	\$ 125	\$ 125
Applications	150	200	200	200	200
Deposit		\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
Deposit Forfeitures		2	3	4	5
Scholarships		15%	15%	15%	15%
Sections		1	1	1	1
# Courses taught by Faculty (all Fulltime)		15	15	15	15
Space Cost per Classroom		\$ 400	\$ 412	\$ 424	\$ 437
# Days Classrooms Required [Wed/Sat]		79	79	79	79
Effort Increase			4%	4%	4%
Non-effort Increase			3%	3%	3%
Events, Workshops, Training per Student		\$ 1,500	\$ 1,545	\$ 1,586	\$ 1,628
University Allocated Costs	21.0%	0.0%	0.0%	0.0%	21.0%
<b>Income:</b>					
Tuition		\$ 3,699,000	\$ 3,828,465	\$ 3,962,461	\$ 5,012,514
Application Fees (assume 25% receive waiver)	\$ 14,063	\$ 18,750	\$ 18,750	\$ 18,750	\$ 18,750
Deposit Forfeitures		\$ 4,000	\$ 6,000	\$ 8,000	\$ 10,000
Less: Scholarships		(554,850)	(574,270)	(594,369)	(751,877)
<b>Total Income</b>	<b>14,063</b>	<b>3,166,900</b>	<b>3,278,945</b>	<b>3,394,842</b>	<b>4,289,386</b>
<b>Expenses:</b>					
Personnel Costs (Faculty, Staff, TAs) + Course Dev	2,205,975	2,975,296	3,088,882	3,207,009	3,329,862
Classroom Space Allocation		31,600	32,548	33,524	34,530
Events, Workshops, Training		81,000	83,430	85,638	107,447
Marketing/Branding/Website/Collateral/Blog/ Admin Costs	125,000	75,000	75,000	75,000	75,000
University Allocated Costs	489,505	-	-	-	737,585
<b>Total Expenses</b>	<b>\$ 2,820,480</b>	<b>\$ 3,162,896</b>	<b>\$ 3,279,860</b>	<b>\$ 3,401,171</b>	<b>\$ 4,284,424</b>
<b>Contribution (Annual)</b>	<b>\$ (2,806,417)</b>	<b>\$ 4,004</b>	<b>\$ (915)</b>	<b>\$ (6,329)</b>	<b>\$ 4,963</b>
<b>Contribution (Cumulative To Date)</b>	<b>\$ (2,806,417)</b>	<b>\$ (2,802,413)</b>	<b>\$ (2,803,328)</b>	<b>\$ (2,809,657)</b>	<b>\$ (2,804,694)</b>
<b>Fuqua Contribution (50/50 split)</b>	<b>\$ (1,403,209)</b>	<b>\$ 2,002</b>	<b>\$ (458)</b>	<b>\$ (3,165)</b>	<b>\$ 2,481</b>
<b>Nicholas Contribution (50/50 split)</b>	<b>\$ (1,403,209)</b>	<b>\$ 2,002</b>	<b>\$ (458)</b>	<b>\$ (3,165)</b>	<b>\$ 2,481</b>

Personnel Costs (Faculty and Staff):

- 15 classes per year taught by fulltime faculty x # sections (30 classes at 2 sections; 45 classes at 3 sections).
- 2.5 FTE – Admissions (2 Fuqua; 0.5 Nicholas)
- 3 FTE – Program Administration and Coordination (1.5 Fuqua, 1.5 Nicholas)
- 3 FTE – Career Development (2 Fuqua, 1 Nicholas) (going to 4 (+1) in 2029)
- 0.33 FTE – Registrar (Fuqua)
- 1 FTE – IT (Fuqua)
- 1 FTE – Financial Aid (Fuqua)
- 0.5 FTE – Student Accommodations (Fuqua)
- Allocation for TA expense per section of each course = \$1,000
- Classroom space allocation covers utilities, HVAC, technology support, cleaning, etc.

Table AC3: 5-year Financial Projections –Lower Enrollment with 2 Sections Breakeven Case

LOW DEMAND BREAKEVEN: Assumes 2 Sections in 2027, 2028, 2029, and 2030

Fuqua/Nicholas - Climate/Business Joint-Degree	2026	2027	2028	2029	2030
<b>Assumptions:</b>					
Students		93	93	93	113
Tuition		\$ 68,500	\$ 70,898	\$ 73,379	\$ 75,947
Tuition Increase			3.5%	3.5%	3.5%
Application Fee	\$ 125	\$ 125	\$ 125	\$ 125	\$ 125
Applications	150	200	200	200	200
Deposit		\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
Deposit Forfeitures		2	3	4	5
Scholarships		15%	15%	15%	15%
Sections		2	2	2	2
# Courses taught by Faculty (all Fulltime)		15	15	15	15
Space Cost per Classroom		\$ 400	\$ 412	\$ 424	\$ 437
# Days Classrooms Required [Wed/Sat]		79	79	79	79
Effort Increase			4%	4%	4%
Non-effort Increase			3%	3%	3%
Events, Workshops, Training per Student		\$ 1,500	\$ 1,545	\$ 1,586	\$ 1,628
University Allocated Costs	21.0%	0.0%	0.0%	0.0%	21.0%
<b>Income:</b>					
Tuition		\$ 6,370,500	\$ 6,593,468	\$ 6,824,239	\$ 8,582,031
Application Fees (assume 25% receive waiver)	\$ 14,063	\$ 18,750	\$ 18,750	\$ 18,750	\$ 18,750
Deposit Forfeitures		\$ 4,000	\$ 6,000	\$ 8,000	\$ 10,000
Less: Scholarships		(955,575)	(989,020)	(1,023,636)	(1,287,305)
<b>Total Income</b>	<b>14,063</b>	<b>5,437,675</b>	<b>5,629,197</b>	<b>5,827,353</b>	<b>7,323,476</b>
<b>Expenses:</b>					
Personnel Costs (Faculty, Staff, TAs) + Course Dev	2,205,975	5,131,148	5,325,544	5,527,707	5,737,962
Classroom Space Allocation		63,200	65,096	67,049	69,060
Events, Workshops, Training		139,500	143,685	147,488	183,961
Marketing/Branding/Website/Collateral/Blog/ Admin Costs	125,000	75,000	75,000	75,000	75,000
University Allocated Costs	489,505	-	-	-	1,259,354
<b>Total Expenses</b>	<b>\$ 2,820,480</b>	<b>\$ 5,408,848</b>	<b>\$ 5,609,325</b>	<b>\$ 5,817,244</b>	<b>\$ 7,325,338</b>
<b>Contribution (Annual)</b>	<b>\$ (2,806,417)</b>	<b>\$ 28,827</b>	<b>\$ 19,873</b>	<b>\$ 10,109</b>	<b>\$ (1,862)</b>
<b>Contribution (Cumulative To Date)</b>	<b>\$ (2,806,417)</b>	<b>\$ (2,777,590)</b>	<b>\$ (2,757,717)</b>	<b>\$ (2,747,609)</b>	<b>\$ (2,749,471)</b>
<b>Fuqua Contribution (50/50 split)</b>	<b>\$ (1,403,209)</b>	<b>\$ 14,413</b>	<b>\$ 9,936</b>	<b>\$ 5,054</b>	<b>\$ (931)</b>
<b>Nicholas Contribution (50/50 split)</b>	<b>\$ (1,403,209)</b>	<b>\$ 14,413</b>	<b>\$ 9,936</b>	<b>\$ 5,054</b>	<b>\$ (931)</b>

Personnel Costs (Faculty and Staff):

- 15 classes per year taught by fulltime faculty x # sections (30 classes at 2 sections; 45 classes at 3 sections).
- 2.5 FTE – Admissions (2 Fuqua; 0.5 Nicholas)
- 3 FTE – Program Administration and Coordination (1.5 Fuqua, 1.5 Nicholas)
- 3 FTE – Career Development (2 Fuqua, 1 Nicholas) (going to 4 (+1) in 2029)
- 0.33 FTE – Registrar (Fuqua)
- 1 FTE – IT (Fuqua)
- 1 FTE – Financial Aid (Fuqua)
- 0.5 FTE – Student Accommodations (Fuqua)
- Allocation for TA expense per section of each course = \$1,000
- Classroom space allocation covers utilities, HVAC, technology support, cleaning, etc.

**From:** Alec Gallimore, Ph.D. <[alec.gallimore@duke.edu](mailto:alec.gallimore@duke.edu)>

**Date:** Thursday, October 5, 2023 at 9:08 PM

**To:** Bill Boulding <[bb1@duke.edu](mailto:bb1@duke.edu)>, Lori S Bennear <[lori.bennear@duke.edu](mailto:lori.bennear@duke.edu)>

**Cc:** Amy Oates <[amy.oates@duke.edu](mailto:amy.oates@duke.edu)>, Mohamed Noor <[noor@duke.edu](mailto:noor@duke.edu)>, Mary Greenway <[mary.greenway@duke.edu](mailto:mary.greenway@duke.edu)>

**Subject:** Climate/Business Joint Degree program

Dear Bill and Lori:

Thank you for an excellent proposal and a great discussion today. I have good news (mostly). I am approving a three-year pass-through exemption for the Climate/Business Joint Degree program. I want to be clear that my decision is not setting a precedent for all new or joint degree programs but is based on the strategic nature of this program with respect to the Duke Climate Commitment. I know you had asked for five years but feel that three is enough time to launch the program. We can take stock of things once we get to Year 3.

Please follow the annual pass-through exemption request during the budget process to submit your expenditures.

All the very best,  
Alec

-----  
Alec D. Gallimore, Ph.D.  
Provost  
Alfred J. Hooks E '68 Distinguished Professor  
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Appendix D: Learning Assessment Plan

While priorities and learning goals will be discussed with faculty as courses are being developed, a full Learning Assessment Plan will be prepared following course development since the assessment will be tied to specific measurable deliverables. Below is a mock-up of the learning assessment plan.

TABLE AD1: *Mock Learning Outcomes for MBCS - DRAFT*

		<b>Learning Outcomes</b>
<b>Learning Objective #</b>	<b>Strategic Educational Objectives</b>	<b>Master of Business, Climate, and Sustainability</b>
<b>1</b>	<b>Teamwork and Ethics</b>	Our graduates demonstrate exceptional teamwork skills and exhibit ethical considerations for decision making to help effectively achieve organizational goals.
<b>2</b>	<b>Core Business, Strategy, and Quantitative Ability</b>	Our graduates possess a strong knowledge of core business theory, strategy development, quantitative analysis and data interpretation.
<b>3</b>	<b>Core Knowledge About Climate and Sustainability</b>	Our graduates possess a strong knowledge of core climate and sustainability issues and how they connect to business and policy.
<b>4</b>	<b>Integrated Analyst Level Skills</b>	Our graduates demonstrate a strong ability to effectively evaluate, interpret, synthesize, and report information across a broad range of media. More specifically, they are able to integrate business, climate, and sustainability concepts and effectively create and communicate the issues and potential solutions.



TABLE AD2: -- Mock MBCS Program 5-Year Learning Assessment Plan – DRAFT

Goal	Outcome	Course	Proposed Measures/Targets (27-31)	2027
<b>Teamwork and Ethics</b>	Our graduates demonstrate exceptional teamwork skills and exhibit ethical considerations for decision making to help effectively achieve organizational goals.	Management and Organizations	X% of students correctly answer embedded question on the final exam.	Y%
			X% of teams meet or exceed expectations on team assignment exercises	Y%
<b>Core Business, Strategy, and Quantitative Ability</b>	Our graduates possess a strong knowledge of core business theory, strategy development, quantitative analysis and data interpretation.	Economics	X% of students meet or exceed established expectations (X% or higher) on the final exam.	Y%
		Climate Finance	X% of students meet or exceed established expectations (X% or higher) on final exam.	Y%
		Climate Decisions Models	X% of students meet or exceed expectations on individual assignment exercises	Y%
<b>Core Knowledge About Climate and Sustainability</b>	Our graduates demonstrate a strong ability to access, synthesize, interpret, and analyze data using statistical and computational techniques.	Carbon Reporting and Accounting	X% of students meet or exceed expectations on individual assignment exercises	Y%
		Climate Economics and Policy	X% of students meet or exceed expectations on individual assignment exercises	Y%
		Climate and Energy	X% of students meet or exceed established expectations (X%) on the final exam.	Y%
<b>Integrated Analyst Level Skills</b>	Our graduates demonstrate a strong ability to effectively evaluate, interpret, synthesize, and report information across a broad range of media. More specifically, they are able to integrate business, climate, and sustainability concepts and effectively create and communicate the issues and potential solutions.	Practicum	X% of students meet or exceed expectations (X% or better) in the Practicum final deliverable.	Y%

Draft includes generic course names.

Course content will need to be finalized before a Learning Assessment Plan can be created.

(Mock) Conclusion:

The results from this report show that all programs are meeting the goals as assigned. At the course level there were failures seen as it relates to specific targets. These are outlined below along with any course level changes or suspected reasons that were noted by the programmatic deans and/or the course instructor. None of these failures required curricular changes.

*Table AD3: Master of Business, Climate, and Sustainability:*

Climate Reporting and Accounting:

<b>Core Knowledge About Climate and Sustainability</b>	Carbon Reporting and Accounting	90% of students meet or exceed expectations (80% score) on individual assignment exercises	<b>88.1%</b>
	Climate Economics and Policy	X% of students meet or exceed expectations on individual assignment exercises	Y%
	Climate and Energy	X% of students meet or exceed established expectations (X%) on the final exam.	Y%

The metric in Carbon Reporting and Accounting selects four separate individual assignments in the course and has a quite high “met” threshold. Three of the four assignments met the threshold of an 80% score and per the instructors they consider that over 88% of students meeting the threshold (although less than the stated target of 90%) is an acceptable percent to exhibit understanding of the course objectives and the educational goal. The high-level threshold will be reconsidered for the next cohort.

(Mock) Follow-up:

The report was reviewed by the Student Learning group on [date] and subsequently reviewed via email. The report was approved for issue by the group via email, effective [date].

## Appendix E: Letters of Support

1. Lori Snyder Benneer, Interim Stanback Dean, Nicholas School of the Environment and Mary Frances Luce, Interim Dean, Fuqua School of Business
2. Jerome P. Lynch, Vinik Dean of Pratt School of Engineering
3. Manoj Mohanan, Interim Dean, Sanford School of Public Policy
4. Toddi Steelman, Vice President/Vice Provost for Climate and Sustainability



Master's Advisory Committee  
Academic Programs Committee  
Academic Council  
Duke University

To Whom It May Concern,

We are writing to express our enthusiastic support for the establishment of the **Master's of Science Degree in Business, Climate, and Sustainability** at Duke University. This innovative program addresses a critical need in today's rapidly changing world, where the private sector plays a pivotal role in addressing climate challenges and achieving sustainability commitments.

Allow me to highlight several key points that underscore the importance of this degree:

1. **Addressing the Gap in Business and Environmental Education:** The private sector is increasingly being called upon to set ambitious climate goals and integrate sustainability practices into their operations. However, current business school curricula often lack comprehensive training on how various aspects of business intersect with climate issues. Similarly, current Environmental School curricula is short on training in business fundamentals. By bridging this gap, the new degree program will equip students with the knowledge and skills needed to navigate the complex intersection of business, climate, and sustainability.
2. **Leveraging Duke's Strengths:** Duke University boasts a rich tradition of interdisciplinary collaboration. The Nicholas School of the Environment has a proven track record of partnering with other units across campus to offer cutting-edge educational experiences. Examples include joint master's degree programs, PhD programs, and collaborative initiatives with schools such as the Sanford School of Public Policy, Duke Law, Pratt School of Engineering, Trinity College of Arts and Sciences and the Medical School. The synergy between the Fuqua School of Business and the Nicholas School positions Duke uniquely to deliver an interdisciplinary program that few other universities can match.
3. **Alignment with Duke's Climate Commitment:** As a university, Duke has made a strong commitment to addressing climate change. This new degree program aligns seamlessly with the university's priorities, leveraging its resources to tackle one of the most pressing global challenges of our time. By educating future business leaders on sustainable practices, we contribute directly to Duke's mission of positive impact.
4. **Strong ties to research programs of many Fuqua and Nicholas faculty:** The program builds off the research expertise of faculty in both schools and, over time, will enable both schools to grow their faculty research in areas of strength for each

school—climate science and policy for NSOE and business for Fuqua. Rather than have both schools try to replicate the efforts of the other to build a weaker version of a business and climate degree, this joint program leverages the research and teaching strengths of both faculties. We also expect that by working together on this degree we will see increased research collaborations among our faculty on business and climate sustainability topics.

5. **Financial Sustainability:** The Deans have secured philanthropic support for the program's initial years which ensures its stability and longevity. With this funding, we can confidently stand up a world-class program without financial risk to the schools or the university. Financial modeling indicates that by year three, the program will be net revenue positive for both schools.

In summary, MSBCS program has strong ties to the research programs of many Fuqua and Nicholas faculty, and is distinctive within Duke, Fuqua's, and Nicholas's portfolio of degree programs. Our market research indicates that (a) there is a large pool of applicants who are interested in a program like the one we describe, and (b) there is an increasing demand from organizations to hire graduates with this combination of skills. As a result, we believe both enrollment risk and career placement risk are low. We have prepared a financial model that we believe is conservative, in that we have budgeted all expenses of the program as incremental. We wholeheartedly endorse this initiative and look forward to witnessing its impact on our students, our community, and the world.

Sincerely,



Lori Snyder Benneer  
Interim Stanback Dean  
Nicholas School of the Environment



Mary Frances Luce  
Interim Dean  
Fuqua School of Business



PRATT SCHOOL of  
ENGINEERING

OFFICE OF THE DEAN  
305 Teer Engineering Building  
Durham, NC 27708-0271  
(919) 660 5389 [phone]  
(919) 684 4860 [fax]

August 16, 2024

Lori Benneer, Ph.D.  
Stanback Dean  
Professor of Energy Economics and Policy  
Nicholas School of the Environment  
Duke University, Durham, NC 277708

Dear Dean Benneer,

I am writing to offer my enthusiastic support for the proposed Master of Science in Business, Climate, and Sustainability, a joint degree program you and colleagues in the Fuqua School of Business have proposed. As Duke University aims to elevate its international profile in developing interdisciplinary solutions that address the challenges of a changing climate, programs such as the one you have proposed are essential to Duke showcasing its intellectual leadership in this critical space. It will also serve the growing needs of industry and government entities who are today desperate for experts who can help them become more climate-conscious and sustainable in their missions and operations.

As you know, the Pratt School of Engineering launched its own professional Master of Engineering degree concentration in Climate and Sustainability Engineering with the first incoming cohort arriving this month. Our assessment of student demand is that it is very high with students from a wide range of professional tracks interested in acquiring expertise specific to climate change. Your degree program strongly complements Pratt's without duplicating efforts; this ensures our two programs will provide students with a broad portfolio of courses that sets Duke apart from peers contemplating the launch of similar programs. While these two programs have been developed independently of one another, there is a golden opportunity for the leaders of both to come together to explore how they can ensure the programs reinforce one another while avoiding duplication consistent with Duke's unwavering commitment to interdisciplinarity. As these two programs flourish, without question Duke will quickly become the *de facto* international leader in educating the future professionals our society desperately needs to find the solutions to climate change.

In summary, the Pratt School of Engineering is enthusiastic in its support of the Master of Science in Business, Climate, and Sustainability being launched between the Nicholas School of the Environment and the Fuqua School of Business. If you or those reviewing your proposal have any questions about our support of the proposed degree program, please feel free to reach out to me at any time.

Sincerely,

Jerome P. Lynch, Ph.D., F.EMI  
*Vinik Dean of Engineering*  
*Fitzpatrick Family University Distinguished Professor of Engineering*  
*Professor of Civil and Environmental Engineering*  
*Professor of Electrical and Computer Engineering*

Prof. Lori S. Benneer, Ph.D.  
Interim Stanback Dean of the Nicholas School of the Environment  
Professor of Energy Economics and Policy  
Duke University

Prof. Mary Frances Luce, Ph.D.  
Interim Dean of the Fuqua School of Business  
Robert A. Ingram Professor of Business Administration  
Duke University

Re: Support for MS in Business, Climate, and Sustainability

Dear Lori and Mary Frances,  
I am writing to express my strong support, as Interim Dean of the Sanford School of Public Policy, for the proposal for the joint MS degree in Business, Climate, and Sustainability to be offered by the Fuqua School of Business and the Nicholas School of the Environment.

There is a compelling need to train a new generation of students who understand how business and climate go hand-in-hand. The training in the new MS (BCS) program will equip students with an understanding of climate science and the skills in management of business and operations including supply chain operations, finance, marketing and more.

The new program will be uniquely positioned to attract a new cadre of students who aim to work at the intersection of business, climate, and sustainability; this is a novel offering that complements the existing suite of various degree programs across the university.

On behalf of the Sanford School, I strongly support the application and wish you all the best.

Sincerely,



Manoj Mohanan, Ph.D.  
Interim Dean  
Creed C. Black Professor  
Sanford School of Public Policy

Dear Lori and Mary Frances,

I am writing to express my enthusiastic support for the new joint program between the Fuqua School of Business and the Nicholas School of the Environment: the Master of Science in Business, Climate, and Sustainability (MSBCS). This innovative degree program represents a significant step forward in our commitment to addressing the pressing challenges of climate change through interdisciplinary education and furthers Duke's goal for creating climate fluency among our student population, both of which are key priorities for me in my role as Vice President and Vice Provost for Climate and Sustainability.

#### **Strengths of the Degree Program**

As I understand it, the MSBCS program is designed to equip students with the critical skills and knowledge needed to navigate the complex intersection of business and environmental sustainability. The curriculum combines dedicated coursework in business fundamentals taught by Fuqua faculty with classes focused on climate science taught by Nicholas faculty. This interdisciplinary approach ensures that students receive a comprehensive education that is both broad and deep, covering essential topics such as sustainable business practices, climate policy, environmental economics, and corporate social responsibility. The program's emphasis on experiential learning, including hands-on projects and a two-term practicum, will provide students with practical experience and valuable industry connections. This approach is fully consistent with the experiential and immersive opportunities that we want to provide students as part of the Duke Climate Commitment.

#### **Non-Redundancy with Other Duke Degree Offerings**

From where I sit, the MSBCS program is distinct from other degree offerings at Duke. While the existing MEM/MBA and MF/MBA dual degrees provide valuable interdisciplinary training, the MSBCS offers a unique focus on the specific challenges and opportunities at the nexus of business and *climate*. This program is designed to attract students who are particularly interested in leading climate and sustainability initiatives within the corporate sector, making it a complementary addition to our current academic portfolio. The target audience is distinctive. The MSBCS program targets early career students with minimal work experience, preparing them for entry-level analyst roles, which differentiates it from other programs that cater to more experienced professionals. The one-year timeline is also a differentiator from the MBA, MEM and dual degree programs.

#### **Alignment with the Duke Climate Commitment**

The MSBCS program aligns well with the Duke Climate Commitment by fostering climate fluency among our students. By integrating climate science with business education, this program will help cultivate the next generation of leaders who are equipped to drive meaningful change in industry, their organizations and in communities. The program's focus on

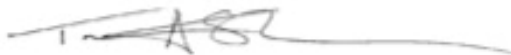
Toddi Steelman | Professor and Vice President/Vice Provost for Climate and Sustainability |  
Duke Office of Climate and Sustainability

Duke University | 219A Allen Building, Durham, NC 27708 | Box 90030 | Durham, NC 27708  
Phone: (919) 271-2844 | [toddi.steelman@duke.edu](mailto:toddi.steelman@duke.edu)



sustainability and climate solutions will also contribute to Duke's broader efforts to demonstrate how we make every degree a climate degree and every profession a climate related profession. This initiative answers the call to action by Duke University leadership to mobilize the resources of the entire university to address the growing climate challenge.

I wholeheartedly support the establishment of the Master of Science in Business, Climate, and Sustainability. This program represents a vital addition to our academic offerings and a powerful tool in our efforts to address the global climate challenge. I am confident that it will attract top-tier students and produce graduates who are well-prepared to make a significant impact in the field of climate and sustainability.



Toddi Steelman, Ph.D. (she/hers)  
Professor of Environmental and Natural Resource Policy  
Vice President/Vice Provost for Climate and Sustainability

**Toddi Steelman** | Professor and Vice President/Vice Provost for Climate and Sustainability |  
Duke Office of Climate and Sustainability

Duke University | 219A Allen Building, Durham, NC 27708 | Box 90030 | Durham, NC 27708  
Phone: (919) 271-2844 | [toddi.steelman@duke.edu](mailto:toddi.steelman@duke.edu)

## Appendix F: Sample of Graduate Programs in Business, Climate, and Sustainability

We reviewed programs that we could identify through an online search that offered some intersection of business, climate, and sustainability. A representative set of offerings is listed below. There are a range of programs that vary in how connected to business schools, policy schools, and schools of the environment along with the degree to which they are in-person, on-line, or hybrid.

### United States

- [Georgetown Master of Science in Environment and Sustainability Management \(MS-ESM\)](#)
- [Kogod \(American University\), Master of Science in Sustainability](#)
- [The Johns Hopkins University School of Advanced International Studies \(SAIS\) designed the MA in Sustainable Energy \(online\), Master of Science in Energy Policy and Climate](#)
- [Columbia's School of Professional Studies in partnership with The Columbia Climate School, Earth Institute and Lamont-Doherty Earth Observatory, M.S. in Sustainability Management](#)
- [UNCG, MS in Sustainability & Environment](#)
- [Rowan University, Joint Degree: BA Environmental & Sustainability Studies and Master's in Business Administration](#)
- [Arizona State University, Master of Sustainability Leadership at ASU \(online\)](#)
- [Sustainability Graduate Program at Harvard Extension \(12 courses\)](#)
- [Middlebury Institute of International Studies at Monterey, Master of Public Administration \(MPA\) in Sustainability online](#)
- [Hult International Business School and Ernst & Young, Master's in Sustainability // Specific to EY personnel](#)
- [University of Michigan, School for Environment and Sustainability, Master of Science in Sustainability and Development \(not much business focus\)](#)
- [St. Johns University, MBA concentration in Sustainability, example of MBA concentration](#)
- [Bard Graduate Programs in Sustainability, MS/MBA, designed for students developing careers at the intersection of policy and business; MBA in Sustainability; MS in Climate Science and Policy](#)

### Outside the United States

- [MSc in Sustainability Transformation at ESSEC](#)
- [University of Reading, Henley Business School, Masters in Climate Change, Sustainable Business and Green Finance](#)
- [HEC – Paris, Master in Sustainability and Social Innovation](#)
- [MSc Sustainability, Enterprise and the Environment at Oxford](#)
- [UCL's Business and Sustainability MSc](#)
- [University of Waterloo Master of Environment and Business \(MEB\)](#)

The [Georgetown Master of Science in Environment and Sustainability Management \(MS-ESM\)](#) is a jointly offered degree that blends scientific knowledge with business principles—a powerful combination that will enable you to decisively address looming environmental threats and help build a more sustainable future within almost any organization.

The Earth Commons Institute along with the McDonough School of Business and the Graduate School of Arts and Sciences created this degree with the understanding that science and business principles are both critical to achieving sustainability goals across the globe. Georgetown’s MS-ESM is a full-time, 11-month interdisciplinary program held on-campus in Washington, D.C. The unique curriculum combines principles of environmental science with a foundation in business management, delivering the comprehensive knowledge you need to become a principled leader in environment and sustainability.<sup>18</sup>

Figure AF1 – Georgetown MS-ESM Curriculum

M.S. in Environment and Sustainability Management (MS-ESM)				
Fall Semester <i>(Mod 1 &amp; Mod 2)</i>		Spring Semester <i>(Mod 3 &amp; Mod 4)</i>		Summer Term <i>(Mod 5)</i>
Environment, Business & Sustainability Management (3 credits)		Climate Impact & Measurement (1.5 credits)	Economics of Climate Change (1.5 credits)	Firm Analysis & Strategy (1.5 credits)
Environmental Science I: Earth Systems & Natural Processes (3 credits)		Environmental Science II: Natural & Human Interactions (3 credits)		ESG Investing (1.5 credits)
Accounting for Sustainability Management (1.5 credits)	Finance for Sustainability Management (1.5 credits)	Sustainable Operations, Supply Chains & Marketing (1.5 credits)	Capstone I (1.5 credits)	Capstone II (1.5 credits)
Drawing Inference from Environmental Data to Lead Change (1.5 credits)	Environmental Data Visualization and Story Telling (1.5 credits)	Energy Transitions (1.5 credits)	Business of Sustainable Energy (1.5 credits)	Leadership Communication (1.5 credits)
<b>Color-Coded Course Themes:</b> <span style="background-color: #90EE90; padding: 2px;">Science Course</span> <span style="background-color: #4682B4; padding: 2px;">Business Course</span> <span style="background-color: #2E8B57; padding: 2px;">Interdisciplinary Course</span>				

Last updated 8/2/2023

<sup>18</sup> Extracted and edited minimally from <https://esm.georgetown.edu/#>

## Appendix G: Faculty Approval

**From:** Timothy L Johnson, Ph.D.  
**Sent:** Thursday, March 21, 2024 11:59 AM  
**To:** [faculty-esp@nicholas.duke.edu](mailto:faculty-esp@nicholas.duke.edu) <[faculty-esp@nicholas.duke.edu](mailto:faculty-esp@nicholas.duke.edu)>; [faculty-ecs@nicholas.duke.edu](mailto:faculty-ecs@nicholas.duke.edu) <[faculty-ecs@nicholas.duke.edu](mailto:faculty-ecs@nicholas.duke.edu)>; [faculty-msc@nicholas.duke.edu](mailto:faculty-msc@nicholas.duke.edu) <[faculty-msc@nicholas.duke.edu](mailto:faculty-msc@nicholas.duke.edu)>  
**Cc:** Sherri Nevius (she/her/hers) <[sherri.nevius@duke.edu](mailto:sherri.nevius@duke.edu)>; Hunter Stokes, J.D. <[hunter.stokes@duke.edu](mailto:hunter.stokes@duke.edu)>; Sandra Maclachlan <[sandra.maclachlan@duke.edu](mailto:sandra.maclachlan@duke.edu)>  
**Subject:** MS in Business, Climate, and Sustainability proposal for discussion 4/2

Hi All,

As we have discussed at recent faculty plenaries, Nicholas and Fuqua have been collaborating on the design of a new 10-month Master of Science in Business, Climate, and Sustainability (MSBCS) professional degree program. The MSBCS will take advantage of what each school does best and provide students with the background in climate science, policy and economics as well as business fundamentals needed to help private sector organizations understand how a changing climate affects their decision making, operations, and reporting obligations.

We have a draft MSBCS proposal (attached) ready to share, and Nicholas and Fuqua have scheduled meetings with their faculty to discuss and then vote on the new program. If both schools vote to move forward, we will begin the longer process of seeking Duke and SACS approval, with the hope that we can admit the first MSBCS class in 2025.

The Nicholas faculty meeting is Tuesday April 2<sup>nd</sup> from 11:30 to 1:00 in Field Auditorium. You should have received a calendar invitation. We initially planned both a discussion and a vote for the 2<sup>nd</sup> and will proceed with a vote that day *if* we have support for doing so. We recognize, however, that concerns may arise that we cannot address in a single meeting and do not want to steamroll MSBCS approval. We are therefore holding time for a second plenary in late April and, if needed, will use this session for additional discussion and then a vote. Look for a save-the-date calendar invitation for this second plenary soon.

Please let me know if you have questions.

Thanks,  
Tim

**Timothy L. Johnson, Ph.D.**  
Senior Associate Dean for Academics  
Chair, Master of Environmental Management Energy and Environment Program  
Professor of the Practice in Energy and the Environment  
Nicholas School of the Environment | Duke University  
5115 Grainger Hall | 9 Circuit Drive | Box 90328 | Durham, NC 27708  
919-681-9339 (office)

**Result of vote on MSBCS degree**

---

**From** faculty-core-request@nicholas.duke.edu <faculty-core-request@nicholas.duke.edu>  
on behalf of  
Laura Turcotte <ljturco@duke.edu>  
**Date** Wed 4/17/2024 1:36 PM  
**To** faculty-core@nicholas.duke.edu <faculty-core@nicholas.duke.edu>

Hi faculty,

Thanks to the many of you who voted on the joint Nicholas-Fuqua Master of Science in Business, Climate, and Sustainability (MSBCS) degree.

**The vote was in favor of the new degree.**

We will keep the school informed as we pursue approval at the Big Duke level.

Thank you!  
Laura

**From:** [Debu Purohit](#)  
**To:** [voting-faculty@fuqua.duke.edu](mailto:voting-faculty@fuqua.duke.edu)  
**Subject:** Proposed Joint Degree Approved  
**Date:** Monday, April 8, 2024 10:11:11 AM

---

Dear Faculty,

We recently completed the voting for the proposed joint degree with the Nicholas School. Based on the faculty discussion and the vote, we have a clear preference to approve the proposed degree, MS in Business, Climate and Sustainability. We will shortly send you an updated version of the proposal and begin the approval process at the University.

Best wishes,

Debu and Bill