THE UNIVERSITY OF NORTH CAROLINA SYSTEM

New Academic Degree Program Request for Preliminary Authorization

Institution UNC Asheville

Degree Program Title (e.g. M.A. in Biology) M.S. in Climate Resilience

CIP Code 03.0209

Reviewed and Approved By (Provide Name and title only. No signature required in this section.)

Review	Name	Title
Chief Financial Officer	John Liposchak	Vice Chancellor for Budget and Finance
Faculty Senate Chair (Or appropriate faculty body)	Dee Eggers	Associate Professor, Faculty Senate Chair
Graduate Council (If applicable)		
Graduate/Undergraduate Dean (If applicable)		
Academic College/School Dean	Melissa Himelein	Interim Vice Provost
Department Head/Chair	n/a	
Program Director/Coordinator	To be determined	

New Academic Proposal Process

New academic programs are initiated and developed by faculty members. The Request for Preliminary Authorization must be reviewed and approved by the appropriate individuals listed above before submission to the UNC System Office for review.

Please provide a succinct, yet thorough response to each section. Obtain signatures from the Chancellor and Provost, and submit the proposal via the PREP system to the UNC System Vice President for Academic Programs, Faculty, and Research, for review and approval by the UNC System Office. If the Request for Preliminary Authorization is approved, the institution may begin work on the formal Request to Establish a New Academic Degree Program.

NOTE: If an institution is requesting preliminary authorization for a degree program at a higher level than their current Carnegie Classification (e.g. a Master's institution proposing a doctoral degree), then a request for a mission review must first be submitted to the UNC Board of Governors Committee on Educational Planning, Programs, and Policies, through the Senior Vice President for Academic Affairs. If approved by the

Board, then the institution may proceed with the Request for Preliminary Authorization.

UNC Institution Name	UNC Asheville
Joint Degree Program (Yes or No)? If so, list partner institution.	No
Degree Program Title (e.g. M.A. in Biology)	M.S. in Climate Resilience
CIP Code and CIP Title (May be found at National Center for Education Statistics)	03.0209 Natural Resources and Conservation – Energy and Environmental Policy
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	No
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	Campus
Will this program be offered through an Online Program Manager (OPM; Yes or No)? If so, list the online OPM.	No
Proposed Term to Enroll First Students (e.g. Fall 2022)	Fall 2024

I. SACSCOC Liaison Statement: *(Provide a brief statement from the University SACSCOC liaison regarding whether the new program is or is not a substantive change.)*

This degree will represent a Substantive Change for UNC Asheville because it will add "a program that is a significant departure from the existing programs, or method of delivery, from those offered when the institution was last evaluated" (SACSCOC Sub Change policy). UNC Asheville will seek and receive SACSCOC approval for the program prior to the implementation date.

II. Program Summary: (*Briefly describe the proposed program and summarize the overall rationale.*) Maximum of 1,000 words.

Include the following in your narrative:

a. How this program supports specific university and UNC System missions.
b. Collaborative opportunities with other UNC institutions as appropriate.
c. Ways in which the proposed program is distinct from others already offered in the UNC System. Information on other programs may be found on the UNC System website, and all similar programs should be listed here (use the 4-digit CIP as a guide).

The goal of the UNC Asheville M.S. in Climate Resilience (MSCR) program is to develop trained practitioners who will make our communities more resilient to climate change. Through coursework and an applied capstone project, MSCR students will gain foundational knowledge and practical skills, uniquely preparing them for jobs in a growing sector.

The program will draw on faculty expertise from across the disciplines and work closely with the National Environmental Modeling and Analysis Center (NEMAC), which strengthens the connection between the applied research center and UNC Asheville's educational mission. The MSCR curriculum guides the program's development and will ensure a multidisciplinary approach in keeping with the liberal arts ethos at UNC Asheville. All faculty members will be invited to teach in the program provided they have the interest and expertise demanded by the curriculum.

A current UNC Asheville faculty member will serve as the MSCR program director. The Provost, with assistance from a selection committee, will appoint the director, who will serve the program full-time for an initial appointment of three years. The director will be expected to teach in the program, manage administrative responsibilities consistent with the duties of department chairs and program directors at UNC Asheville, and oversee recruitment efforts. The director's annual stipend will be set by the Provost following review of stipends awarded for similar responsibilities on our campus.

Cohorts of students will complete 30 credit hours in a Fall-Spring-Summer sequence that includes an applied research capstone project. Students will learn the MSCR conceptual framework in the Fall and build their applied skills in the Spring. They also choose and begin working with a community partner in the Spring. Their capstone project is completed during the Summer and is designed according to the specific needs of their community partner. One example of a project could be creating a climate adaptation/resilience plan for a city or town. The student, together with the community partner, will identify unique and potentially disruptive vulnerabilities to climate impacts. Then, the student will propose policies and improvements to increase the city's resilience to such impacts. Some policies could relate to infrastructure and engineering challenges, while others may target emergency preparedness plans and city services.

Fall Term - Foundational Knowledge (12 credit hours)
Climate Resilience Foundations: Theory and Practice
Political Economy of Inequality, Environmental Justice, and Climate Resilience
Introduction to Climate Science
Introduction to Geographic Information System Technologies

Spring Term - Applied Skills (12 credit hours)
Using and Communicating Models of Hazards, Risk, and Vulnerability
Internship with Community Partner and Project Proposal Development
Advanced Geographic Information System Technologies
Elective*

Summer Term - Capstone Project (6 credit hours)
Applied Climate Resilience Practicum

**Possible elective topics could include Nature-Based Climate Resilience Strategies; Watershed Hydrology; Climate Change and Public Health; Land-use Planning; Stakeholder Engagement; Climate Change Communication; Climate Resilience Finance and Funding; and Systems Thinking.*

We developed this curriculum based on several factors. The knowledge and skills align with our review of current job postings for climate resilience analysts and specialists. We consulted a framework document created by the American Society of Adaptation Professionals. The National Oceanic and Atmospheric Administration recently

released a practitioner's guide for resilience (NEMAC is a contributor), which can serve as the foundation for the Climate Resilience Foundations course. We also had several conversations with climate resilience experts, including Jim Fox, the former NEMAC Director.

The curriculum emphasizes practical skills. MSCR students will learn to understand and analyze complex data sets, particularly those that integrate ecological and socioeconomic measures. Our courses will teach statistical and spatial analysis as well as interpreting model results. Students will see examples of climate resilience and adaptation plans and, as their capstone project, create one of their own based on the needs of their community partners.

We anticipate a cohort size of 12-15 students each year, and they should have completed three prerequisite introductory courses in their undergraduate education: a relevant natural sciences course (i.e., atmospheric science, chemistry, environmental science/studies, or physics), economics, and statistics. We can still admit students missing one of the prerequisites with the understanding that they will complete it during the Fall semester.

How MSCR differs from other UNC System programs

The UNC Asheville MSCR program will be distinct from other UNC System programs. Of the five programs that share the 03.02 CIP code, only the MSCR falls under Energy and Environmental Policy (03.0209). Four (two bachelor's, two master's) are general Environmental/Natural Resources Management and Policy programs (03.0201) and one (master's) is a Water, Wetlands, and Marine Resources Management program (03.0205); none of these programs explicitly address climate resilience. Further, the master's programs are offered at NCSU and UNC Wilmington making UNC Asheville's program the only such advanced degree program west of Raleigh.

The UNC System has only one program with "climate" in its title – Climate Change and Society (CCS), which is a master's program offered at NCSU. This one-year program requires 31 credit hours of coursework including a 3-hr capstone project. While some similarities exist between CCS and the proposed MSCR, there are several important differences. First, the MSCR capstone project is a 6-credit hour experience and is preceded by a 3-hr internship with a community partner. The expanded project and early relationship-building allows students to create a detailed and relevant product. Second, the MSCR capstone project is a highly focused practicum during which students will create adaptation/resilience plans designed to mitigate harm from climate impacts. Third, MSCR will create working professionals that local and state governments need to plan for climate impacts and adaptation. This is narrower in scope than CSS, which means all aspects of the MSCR program are tightly focused on professional skills.

How MSCR supports UNC Asheville and UNC System Missions

The MSCR program supports the missions of both UNC Asheville and the UNC System. According to UNC Asheville's Mission Statement, a UNC Asheville education prepares students for "leadership and service" while emphasizing "applied research" and "community engagement." Additionally, UNC Asheville's graduate programs should "address the most pressing issues of our time." The MSCR program was designed to precisely support these components of UNC Asheville's mission statement. Our graduates will serve their communities as climate adaptation and resilience leaders; the capstone project and internship represent a significant applied research endeavor with a community partner; and planning for climate impacts is arguably the most pressing issue locally, nationally, and globally.

The UNC System Mission is to "discover, create, transmit, and apply knowledge to address the needs of individuals and society." MSCR graduates will play a key role in helping individuals and society prepare for and adapt to climate impacts. This essential work is grounded in the program's coursework and practicum, during which students will learn to transmit and apply their knowledge to the needs of their community partners. The MSCR program will also help the UNC System meet many of its goals outlined in the 2022-2027 Strategic Plan. Specifically:

Goal 4: Increase graduate student success

UNC Asheville has experienced and dedicated faculty and staff who prioritize student success and effective instruction. Our small size, close relationships with students, and emphasis on multidisciplinary teaching is well-suited for the MSCR program. We can ensure our students' intellectual and emotional well-being while supporting them towards on-time graduation.

Goal 6: Increase affordability

UNC Asheville tuition is affordable, and the MSCR program is designed as a one-year program to decrease both the time to degree and overall cost associated with two-year master's programs. While this goal is aimed at reducing undergraduate debt, advanced degrees – which are often required for professional advancement – are also significant sources of student debt. The MSCR program will be offered with an excellent value-to-cost ratio.

Goal 7: Improve University productivity

The MSCR program will make use of existing resources (both personnel and infrastructure) at UNC Asheville and leverage long-standing community partnerships with local, state, and federal organizations. MSCR has the potential to be a substantial revenue generator with limited and predictable additional costs.

Goal 8: Increase the System's contribution to the state's critical workforces

The MSCR program will create a new type of STEM professional needed in a critical workforce at the local and state level. While this goal, like Goal 6, is aimed at undergraduate programming, graduate programs can and should contribute to its intent. MSCR will be the only UNC System program designed with the climate resilience workforce in mind.

Goal 12: Improve faculty and staff retention

Many UNC Asheville faculty and staff are motivated to help our communities prepare for climate change and are eager to participate in the MSCR program. Teaching in a graduate program will be an important opportunity for professional growth because our student body is almost entirely undergraduate. We anticipate that faculty and staff who choose to participate in the program will feel a renewed sense of purpose and increased job satisfaction.

III. **Student Demand***: (Provide external estimates of student demand. Discuss the extent to which students will be drawn from a pool of students not previously served by the institution. Maximum length 1,000 words.)*

To assess potential student demand, we reviewed enrollment trends across the UNC System for undergraduate majors relevant to climate resilience, examined application and enrollment data for a similar graduate program, and conducted a poll of UNCA undergraduates currently enrolled in climate resilience-related courses.

One indication of student interest in a graduate program in climate resilience comes from a review of the popularity of related undergraduate majors. For example, if majors in areas such as environmental studies, public policy, and

sustainability are growing in North Carolina institutions, we can anticipate parallel increases in interest in the MSCR program.

Using Insight dashboards produced by the North Carolina System Office, our Institutional Research, Effectiveness and Planning office examined enrollments in seven possible feeder disciplines across all NC public institutions (03.01 Natural Resources Conservation and Research, 03.02 Natural Resources Management and Policy, 30.33 Sustainability Studies, 40.04 Atmospheric Sciences and Meteorology, 44.04 Public Administration, 44.05 Public Policy Analysis, and 45.06 Economics). Between Fall 2018 and Fall 2022, enrollments in these areas increased from 4,334 to 4,759, or 10% overall. In contrast, undergraduate degree-seeking enrollment during the same period declined by 1% (from 183,955 to 182,071). Looking specifically at Environmental Studies programs (3.0103) in the UNC System (Appalachian State, UNC Asheville, UNC Chapel Hill, UNC Wilmington, UNC Greensboro, and UNC Pembroke all have such programs) and trends over the longer term, we see that enrollments in this major have grown by 25% since 2010. In 2021, a total of 256 students graduated with degrees in Environmental Studies from these six institutions. At UNC Asheville, the number of Environmental Studies degree completions has grown 67% since 2010, and we graduated 60 such majors in 2021. Environmental Studies is one of the most popular majors at UNC Asheville, with currently over 100 declared majors. We expect UNC Asheville students to initially provide a strong source of demand for the MSCR in the early years of the program, with more students coming from across the state and beyond as the program becomes more established. Both internal and external numbers show growing student interest in relevant undergraduate majors suggesting strong demand for the MSCR.

To understand student demand for the MSCR program from the UNC Asheville undergraduate population, we conducted an in-person convenience sample of undergraduates in five courses with topical connections to climate resilience. We surveyed students in three Economics courses (Environmental and Natural Resource Economics and Policy, Land Economics, and Climate Finance), one cross listed Atmospheric Sciences/Environmental Studies course (Air Pollution Formation and Impacts), and one interdisciplinary course on sustainability (Seminar on Sustainability). Environmental Studies students are especially well-represented in this sample, with Economics majors and Atmospheric Science majors also represented, amongst other majors. We administered the surveys in Fall 2022 and Spring 2023. Students were told about the proposed degree program's one-year timeframe and curriculum requirements, the internship and applied research project, program prerequisites, and possible career opportunities following graduation. Students were then asked if they had any questions or comments about the program and if they would be interested in applying, should it come to fruition.

Conducting the survey in-person allowed us to achieve a response rate of 100%. A total of 60 unique students were surveyed, with 38, or 63% saying they would be interested in applying to the UNC Asheville MSCR (see Table 1). This high level of demand for the program was matched by excitement and enthusiasm about the program's potential launch, with some graduating seniors saying they wish the program could launch next year so they could apply now. Specific features of the program identified as attractive by students include the one-year timeframe, the applied research project connected to a community partner, the salience of the expanding career field of climate resilience, and the potential for societal impact.

Table 1. UNC Asheville Undergraduate Interest in the MSCR

Total Students Surveyed	Number Interested in MSCR	% of Surveyed Students Interested in MSCR
60	38	63%

To get a sense of what disciplinary backgrounds potential applicants might come from, we also collected information about interested students' majors (see Table 2). Understanding these disciplinary profiles can help us gauge not only where internal demand for the program might originate, but also what potential there is for external demand. We find that 53% of those surveyed expressing interest in the program are Environmental Studies majors;

this is followed by 18% of interested students coming from Economics and 13% from the Atmospheric Sciences. A variety of other majors spanning the social sciences, natural sciences, and the humanities account for the remaining 16% of interested students.

Table 2. Distribution of Majors Amongst 43 UNC Asheville Undergraduates Surveyed with an Identified Major and Expressing Interest in the MSCR

Undergraduate Major	Number Interested in MSCR	% of Students Interested in MSCR
Environmental Studies	20	53%
Economics	7	18%
Atmospheric Sciences	5	13%
Chemistry	1	16%
Political Science	1	
Ethics and Social Institutions	1	
Management/Accounting	2	
Computer Science	1	

Enrollment data from similar master's degree programs can also provide suggestive evidence of potential demand for the MSCR. As noted in Section II, the only other graduate program in the UNC System with a similar focus to the MSCR program is Climate Change and Society (CCS) at NCSU. Examination of Insight data suggests strong demand for this program. In Fall 2021, the NCSU CCS received 67 applications; in Fall 2022, the program received 70 applications. The Insight data also suggests that this single program is not currently meeting student demand for graduate training in climate resilience, as the CCS program currently admits less than half of its applicants. In Fall 2022, 23-25 of the 70 individuals that applied were enrolled. Not only would the MSCR program offer a graduate option to students in the westernmost regions of North Carolina, but it could also help satisfy the demand across the state that the NCSU program cannot accommodate.

Finally, we expect strong demand for the MSCR given the competitive niche the program fills. As noted in Section IV below, climate resilience is an emerging and growing field, generating increasing demand for trained professionals. As noted in Section II above, there is only one other master's program in North Carolina focused on climate resilience (NCSU's CCS), and, when we expand our scope to the entire country, we find very few master's programs dedicated specifically to climate resilience. Instead, we find masters programs focused on climate policy and programs that offer broader environmental management or planning degrees that include an option to earn a certificate or concentration in climate resilience. By offering a program more tailored to what the labor market is currently demanding for climate resilience professionals and being one of the only programs in the country to offer such training, we expect healthy demand for the MSCR.

IV. Access, Affordability, and Student Success: (*Provide an analysis of the impact of the program on student access and affordability. Maximum length 1,000 words. Reference sources such as College Scorecard, Census postsecondary outcomes data, etc. For graduate programs, focus on areas relevant to the institution's strategic plan.)*

a. Analysis of the impact of the proposed program on student access, including key metrics identified in the UNC System Strategic Plan and statewide initiatives (such as myFutureNC).

We anticipate that the MSCR program will improve student access to higher education and advanced degrees, a key feature of the 2022-2027 UNC System Strategic Plan. MSCR is designed as a one-year master's program, and we are keeping our undergraduate students in mind as we develop the program. The small number of prerequisite courses will expand the pool of potential students by removing unnecessary barriers to entry. We may consider a 4+1 option for several majors (e.g. Environmental Studies, Atmospheric Sciences, Economics), which will allow students to continue on to a master's degree without having to move. The Economics Department is already considering a three-year degree affording their majors a possible 3+1 option. Many UNC Asheville students are from western North Carolina and/or first-generation college students who often prefer remaining close to their families and hometowns. This has the added benefit of enticing our undergraduates to finish their undergraduate degrees here.

b. **Analysis of student debt levels** for similar programs and programs at the same academic level at the institution.

Because we are a primarily undergraduate-serving institution, we do not have similar master's programs at UNC Asheville. However, we can examine student debt burdens for similar applied master's programs in the state. The Climate Change and Society master's degree at NC State University, Duke University's Master of Environmental Management, and UNC Chapel Hill's Master of City and Regional Planning provide the closest comparable degrees. As these are all applied, professional master's degrees, these programs do not provide funding for students via Research Assistantships or Teaching Assistantships, as is common in doctoral and other research-oriented graduate programs. While some students may be able to earn scholarships, most students will need to pay tuition and fees on their own. A comparison of these costs reveals student-debt levels will be lowest at UNCA (see Table 3). It is worth noting that, in addition to lower overall costs, the one-year timeframe reduces the time students are out of the workforce, which is an additional benefit not captured in Table 3.

Table 3. Costs for UNC Asheville M.S. in Climate Resilience Versus Comparable Master's Degree Programs

Master's Program	**Tuition + Fees, NC Resident**	**Tuition + Fees, Out-of-State Resident**
NC State University Master's in Climate Change and Society (2 semesters + Summer program)	$13,650[1]	$35,854[1]
UNC Chapel Hill Master of City and Regional Planning (2-year program)	$25,069[2]	$61,653[2]
Duke University Master of Environmental Management (2-year program)	$88,104[3]	$88,104[3]
UNC Asheville Master of Science in Climate Resilience (2 semesters + Summer program)	$10,455[4]	$29,350[4]

[1] 2022-2023 NC resident rates are $11,700 base tuition and fees plus $1,950 Summer tuition and fees for 3 credit hours. 2022-2023 out-of-state rates are $30,906 base tuition and fees plus $4,948 Summer tuition and fees for 3 credit hours. https://studentservices.ncsu.edu/your-money/tuition-and-fees/graduate-students/
[2] 2022-2023 tuition and fees. https://cashier.unc.edu/tuition-fees/graduate-programs/
[3] 2022-2023 tuition and fees. https://nicholas.duke.edu/admissions/tuition-fees
[4] 2022-2023 NC resident rates are $8,172 base tuition and fees plus $2,283 Summer tuition and fees for 6 credit hours. 2022-2023 out-of-state rates are $24,494 base tuition and fees plus $4,856 Summer tuition and fees for 6 credit hours. Summer graduate tuition and fees rate is assumed to be 25% greater than the undergraduate rate. https://www.unca.edu/admission/tuition/ and https://docs.google.com/document/d/18W9kazk33b7N3dk3gOinnyKVRtbqI3V0cZiOqZF_k_c/edit

c. Provide an analysis of indebtedness, repayment, and relationship to potential earnings.

The UNC Asheville MSCR program offers a favorable debt to earnings ratio for graduates. Hart (2022) reports that the salary range for Climate Resilience specialists with a master's degree is currently between $59,000 and $100,000. Another relevant job category for estimating what MSCR graduates might earn comes from a ncworks.gov tally of North Carolina jobs with the title "Sustainability Specialist." In North Carolina, the median salary for these jobs is $64,770. Assuming this state-specific, median salary of $64,770 and a 10-year payback period on a student loan of $10,455 at 6% interest with a monthly student loan payment of $116 per month, an in-state graduate of the MSCR will only be paying 2% of their monthly salary in student loans.

Following a comprehensive assessment of the return on investment (ROI) of graduate degrees across many disciplines, Cooper (2022) demonstrated that the typical master's degree, after accounting for the cost of graduate education, increases lifetime earnings by approximately $83,000. In addition, according to Cooper's analyses, master's degrees in STEM fields have a much higher ROI, on average, than those in other disciplines. When considering the affordability of a one-year master's program, we can safely assume that graduates of the MSCR program will experience significant financial benefit from their degrees.

Cooper, P. (2022, February 24). Is grad school worth it? A comprehensive return on investment analysis. The Foundation for Research on Equal Opportunity. https://freopp.org/is-graduate-school-worth-it-a-comprehensive-return-on-investment-analysis-a84644f29f9

Hart, MV. (2022, October 25-27). Draft Occupational Profile: Climate Change Adaptation and Resilience Specialist, [Paper Presentation]. National Adaptation Forum, Baltimore, MD.

V. Societal and Labor Market Demand: *(Provide **external** evidence of societal demand and employability of graduates from each of the following source types. Must include external estimates. Maximum length 1,000 words)*

a. Labor market information (projections, job posting analyses, and wages)
   i. Specific to North Carolina (such as ncworks.gov, nctower.com, or outside vendors such as Burning Glass).
   ii. Available from national occupational and industry projections (such as the U.S. Bureau of Labor Statistics).
b. Projections from professional associations or industry reports (including analysis)
c. Other (alumni surveys, insights from existing programs, etc.)

Interest in ecosystem and community resilience is growing at the same time as our communities are facing climate-related impacts (National Oceanic and Atmospheric Administration, 2023). Many communities within North Carolina are recognizing the need to strengthen their adaptive resilience by mitigating their vulnerability and risk to disruptive climate impacts. North Carolina needs universities to prepare graduates that can contribute to these planning priorities.

Thus, North Carolina and the nation demand a trained workforce that has the skills to apply climate information for societal decision-making. Specifically, the need is for professionals that can provide climate services skills to help build local communities' capacity to address the climate-driven impacts through climate vulnerability analyses, facilitation, and guidance. Universities play a pivotal role in addressing this challenge – the education sector can uniquely act as a convener for the cross-sector collaboration needed with government, businesses, local communities, and non-profit organizations to co-create and address these workforce demands (Nishimura and Rowe, 2021).

According to the Environmental and Energy Study Institute, "climate adaptation and resilience are rapidly emerging areas of employment as a result of climate change impacts" (Environmental and Energy Study Institute, 2021). The American Society of Adaptation Professionals (ASAP), the country's leading resilience and adaptation professional association that represents 38 organizational members who employ over 100,000 people, reports that nationally at least 1,000 professional-level adaptation jobs were hired in 2019 and another 1,200 in 2020. Job creation in this sector is expected to accelerate, especially with additional federal investment in adaptation and resilience (Environmental and Energy Study Institute, 2021), providing a growing market for graduates of UNC Asheville's MSCR as they enter the workforce.

The top five skills needed for a mid-level *Climate Change Adaptation/Resilience Specialist* include a background in climate change analysis, impact, policies, GIS, and outreach – all focal points of the MSCR curriculum – along with business development, budgeting, and sustainability strategy (Hart, 2022). The salary range for this position with a master's degree is between $59,000-$100,000 (Hart, 2022). While a *Sustainability Specialist* in North Carolina has a median annual salary of $64,770 (ncworks.gov).

Specifically, in North Carolina, graduates of the MSCR will find employment with non-governmental organizations (NGOs), local and state governments, private businesses, academia, and other organizations. As of March 24th, 2023, there are 58 positions available when completing a search of "climate resilience"-related positions in North Carolina on Indeed (indeed.com) and 469 positions available when searching "sustainability"-related jobs. Some examples of these positions are found below.

Table 4. A subset of job listings and salaries for "climate resilience"- related positions in North Carolina, as of March 24, 2023.

Title	Organization/Location	Org Type	Salary	Website
Climate Resilience Specialist	Adaptation International (remote)	Non-profit	$60-80K	https://tinyurl.com/7jpzns4n
Coastal Resilience and Sustainability Specialist	Jacobs (Charlotte)	Business	$82-105K	https://tinyurl.com/yc5tsaf2
FEMA Project Manager	Atkins (Raleigh)	Business	$75-95K	https://tinyurl.com/2bd5u8j2
Sustainability Coordinator	UNC Wilmington (Wilmington)	Academia	$39-44K	https://jobs.uncw.edu/postings/28021

Sustainability Outreach Specialist	Eastern Carolina University (Greenville)	Academia	$31-49K	https://tinyurl.com/2pmebcya
Project Manager, Forests	National Audubon Society (Durham)	Nonprofit	$55-60K	https://tinyurl.com/2p8hv27u
Resilience Planner	Stantec (Raleigh)	Business	$44-55K	https://tinyurl.com/ykj2267a
Water Research GIS Support	Environmental Protection Agency (Research Triangle Park)	Government	$47K	https://tinyurl.com/nhdb2chp
Environmental Specialist I	Dept of Environmental Quality (Swannanoa)	Government	$43.5-76K	https://tinyurl.com/456246n7

ASAP found that there is widespread demand nationally for an adaptation workforce in all 50 states (ASAP, 2022). Thus, there is a need to develop the skills and competencies and provide targeted training and apprenticeship programs to ensure that the growth of the adaptation and climate resilience workforce keeps pace with community resilience needs. This growing market provides a unique opportunity for our MSCR program.

American Society of Adaptation Professionals, 2022. ASAP's 2022 Policy Priorities, accessed online at https://tinyurl.com/3kdrfb93 on March 1, 2023

Environmental and Energy Study Institute, 2021. Adaptation Jobs Explainer: Understanding this critical and growing workforce, accessed online at https://tinyurl.com/2wx6v6xp on March 1st, 2023

Hart, MV. (2022, October 25-27). Draft Occupational Profile: Climate Change Adaptation and Resilience Specialist, [Paper Presentation]. National Adaptation Forum, Baltimore, MD.

Nishimura and Rowe (2021). "Global Guidance for Education on Green Jobs: Connecting Higher Education and Green Opportunities for Planetary Health. Draft." UN Environment Programme. Accessed online at https://wedocs.unep.org/handle/20.500.11822/35070, on March 1, 2023.

National Oceanic and Atmospheric Administration, 2023. Climate Change Impacts, accessed online at https://tinyurl.com/38efw7fk on January 4, 2023.

VI. Costs, Funding, and Budget (*Maximum length 1,000 words)*

Adding a new degree program will cost the institution some amount of money and will potentially generate new revenues. Calculating the costs and identifying the funding sources associated with implementation of a new program requires several institutional offices (e.g., academic affairs, finance, institutional research, enrollment management) to collaborate to present an accurate estimate.

a. Complete and attach the *UNC System Academic Program Planning Financial Worksheet* showing all costs required and revenues generated for each of the first five years of the program. Provide a budget narrative for each year addressing the following:

   i. UNC Academic Program Costs

   Faculty costs include all faculty assigned to the proposed program, including faculty

serving as program directors, coordinators, department chairs, etc. funded in the 101 instructional budget code. If an existing faculty member is reassigned to the program, the salary is reflected as a reallocated cost. New faculty salaries need to be competitive for the discipline, and figures should include all applicable fringe (e.g., retirement, medical). If the proposed program will hire new faculty, it is a new cost.

Graduate Assistant costs are identified either as new or reallocated, as appropriate, and should include all stipends, tuition remission, and benefits, as applicable.

EHRA Non-Faculty positions include non-instructional academic support costs directly associated with running the program, including amounts associated with the Dean's office, research support, etc. This should include salaries and all applicable fringe.
SHRA Non-Faculty positions includes all positions specific costs associated with the new program. This includes the additional staff needed to organize applications, prepare for the proposed program, and for general administration of the proposed program. New staff or purchases of new equipment should be adequate to support the stated goals and enrollments for the proposed program. Other program costs identified in the proposal should be realistic.

Total costs over the first five years of the program are estimated to be $1,612,000. The largest program costs are personnel salaries. An existing faculty member will be reassigned as the MSCR Director, and 100% of the director's salary is considered a cost to the program. It is worth noting that, though this salary appears as a cost, it does not represent an increase in overall personnel costs to the university. The director's responsibilities will include teaching, advising, recruiting, and building relationships with community partners. In addition to courses taught by the director, other instruction will be delivered by existing faculty, NEMAC staff, and community experts (i.e., Professors of the Practice). Our budget assumes half of each semester's courses will be taught by existing faculty, while the other half will be taught by NEMAC staff and Professors of the Practice. NEMAC staff will also teach the summer practicum course. We have budgeted for one adjunct instructor per semester to cover an undergraduate course vacated by a faculty member teaching in the program, though this might not always be necessary. Regarding non-instructional personnel, the program will hire a new administrative assistant. This staff member will eventually serve other future graduate programs, but, until they are established, 100% of the salary will be borne by MSCR. Thus, this line item likely overestimates the cost to the program in the later years. Total personnel salaries and benefits are $280,400 per year and $1,402,000 over the first five years.

Some of our students may have to travel to meet with their community partners during the spring internship and summer practicum. We have budgeted for student travel grants each year to offset these additional costs to students; this may be an overestimate depending on how far students need to travel. We have also budgeted for small honoraria for our students' community partners. The total annual cost for travel grants and honoraria is $17,500.

The remaining costs are primarily associated with program start up and initial recruitment. The director and/or other MSCR representatives will travel to regional colleges and universities to recruit students for our first cohorts and establish future enrollment pipelines. Tabling at relevant professional and academic conferences will also be more frequent in the early years of the program. We will use existing space on campus and do not anticipate repairs or renovation. The major Equipment and Technology costs in Year 1 are to equip the MSCR space with student workstations, large screens, and peripheral equipment. In addition to the director's office, the MSCR space will have a conference room and computer lab for students. Supplies and Materials costs may include software licenses, reference texts, and professional dues.

ii. UNC Academic Program Revenues

Funding sources may include enrollment growth formula funding, other state appropriation, regular tuition, tuition differential, general fees, special fees, reallocation of existing resources, federal funding, and other funding (such as awarded grants or gifts). The total projected revenue from the above categories should allow the proposed program to become self-sufficient within five years.

When estimating funding for new programs, institutions should take into account that students switching programs do not generate additional enrollment growth formula funds. For example, if a program projects enrollment of 20 students, but 12 of them switched into the program from an existing program at the institution, then only 8 of the students would generate additional formula funding.

Reallocation of Existing Resources includes the salary of faculty reassigned who may be partially or wholly reallocated to the new program. Explain how the current teaching obligations of those faculty are reallocated and include any faculty replacement costs as program costs in the budget. If substantial funds are reallocated, explain how existing undergraduate and graduate programs will be affected.

Federal Funding (In-hand only) refers to federal monies from grants or other sources currently in hand. Do not include federal funding sought but not secured. If anticipated federal funding is obtained, at that time it can be substituted for funds designated in other funding categories. Make note within the text of the proposal of any anticipated federal funding. Provide evidence of sustainability after federal funds have been exhausted.

Total revenues during the first five years of the program are estimated to be $1,316,382. All revenues come from student tuition and Enrollment Funding Appropriations. Our revenue calculations assume 10 students in Years 1-2, 12 students in Years 3-4, and 15 students in Year 5. In each year, we assume two out-of-state students.

The total five-year revenues are estimated to be $340,618 less than the total costs, but we think the program will be a significant revenue generator for several reasons. First, the revenue collected in the first five years does not capture the total revenue *generated* in the first five years because of the delay in Enrollment Funding Appropriations. The total revenue generated in the first five years is estimated to be $1,612,824. Second, we project that revenues will grow over the first five years while costs will fall. This is due to projected enrollment growth while the initial costs associated with establishing the program are reduced. Third, on an annualized basis, collected revenues exceed costs by Year 5 meaning the program will reach self-sufficiency. When considering revenue generated each year, self-sufficiency is reached by Year 3. Additionally, we are not accounting for intangible benefits the MSCR program will provide including undergraduate recruiting, increased stature, and the statewide and regional recognition that the university is producing graduates who solve important and relevant problems.

We calculated revenues for three different enrollment growth scenarios: Low, Medium, and High. The Medium growth scenario is described above with 10 students in Years 1-2, 12 students in Years 3-4, and 15 students in Year 5. The Low growth scenario begins with eight students in Years 1-2, then grows to 10 students for Years 3-5. The high growth scenario assumes initial enrollment of 10 students in Year 1, 12 students in Year 2, 15 students in Year

3, and 20 students in Years 4-5. Figure 1 shows the revenue generated in each year, i.e., not accounting for the delay in Enrollment Funding Appropriations. The shaded bands for each enrollment growth scenario represent a range of revenue generated depending on the ratio of in-state to out-of-state students. The minimum revenue for each scenario assumes 100% in-state enrollment, while the maximum revenue assumes 100% out-of-state enrollment. Annual costs are represented by the black line. Self-sufficiency (revenues exceed costs) is reached by Year 2 and Year 3 in the High and Medium growth scenarios. The Low growth scenario does not reach self-sufficiency meaning a total enrollment greater than ten students is necessary.

Figure 2 shows cumulative costs and generated revenues over the first five years. As stated above, five-year costs are essentially equal to five-year revenue in the Medium growth scenario. Because the slope of the Medium growth revenue is greater than the slope of the costs, however, the program is a revenue generator in subsequent years.

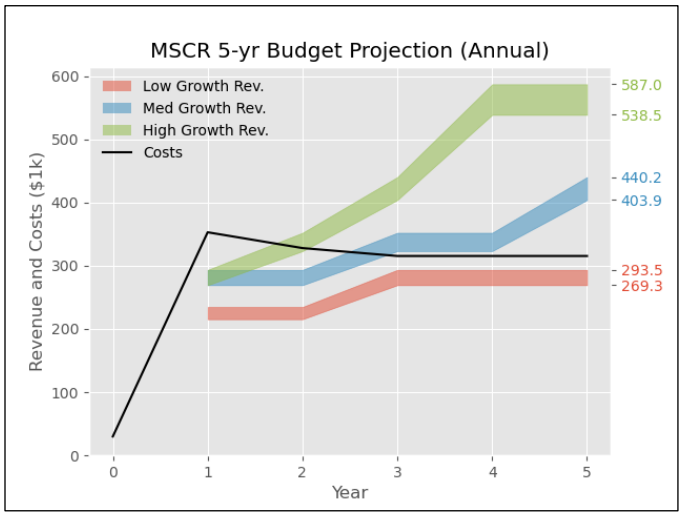

Figure 1. Annual costs and generated revenue for three enrollment growth scenarios. Each shaded band represents the range of revenues generated depending on the ratio of in-state and out-of-state students.

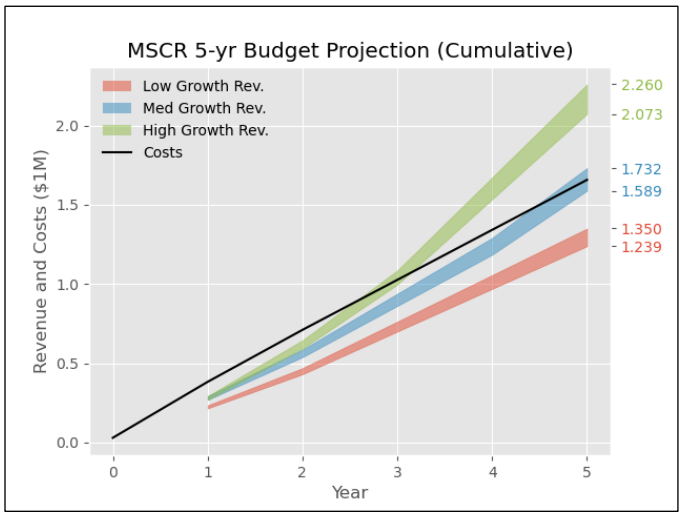

Figure 2. Cumulative costs and generated revenue for three enrollment growth scenarios.

b. Based on the institution's estimate of available existing resources or expected non-state financial resources that will support the proposed program (e.g., federal support, private sources, tuition revenue, etc.), please describe the following:

i. How does the institution budget and allocate enrollment growth revenues? Is this program expected to generate new enrollment growth for the institution? If so, how will funds be allocated to the proposed program or be used to further other institutional priorities?

Enrollment growth revenues flow into the university's general fund and are allocated through our usual budget processes, which are consultative with a University Budget Committee but ultimately approved by senior leadership. While this program will generate only modest new enrollment growth revenue, as seen in the budget projection, we expect it to be sufficient to cover operating costs for delivery by Year 5. Any surplus revenues will be allocated by senior leadership to support the operation of the university in all areas, and not retained exclusively by this new program.

ii. Will the institution seek other additional state appropriations (both one-time and recurring) to implement and sustain the proposed program? If so, please elaborate.

No.

iii. Will the institution require differential tuition supplements or program-specific fees? If so, please elaborate.
    1. State the amount of tuition differential or program-specific fees that will be requested.
    2. Describe specifically how the campus will spend the revenues generated.

We do not require either differential tuition supplements or fees.

c. Provide a description of how the program can be implemented and sustained If enrollment increase funding, differential tuition, or other state appropriations noted in the budget templates are not forthcoming.

The program does not depend on differential tuition or other state appropriations. Further, all instructional staff are in place, and, other than a new administrative assistant, there are no additional personnel costs. The university's existing physical resources and infrastructure are largely sufficient to support the program. If enrollment does not meet the threshold needed to sustain the program, we might consider how to offer these courses to undergraduates interested in working towards a master's degree. This would provide opportunities for our current students as part of a 4+1 or 3+1 graduate degree program.

VII. For Research Doctoral Programs Only:

Describe the following (maximum length 1,000 words):

a. The research and scholarly infrastructure in place (including faculty) to support the proposed program.
b. Any aspects of financing the proposed new program not included in the above section.
c. State the number, amount, and source of proposed graduate student stipends and related tuition

benefits that will be required to initiate the program.

VIII. For Professional Practice Doctoral Programs Only:

Describe the following (maximum length 1,000 words):

a. Discussion of external requirements, including professional licensure or accreditation requirements related to the proposed program. If the program is designed or will be marketed to lead to professional licensure, which state(s) has the institution determined the program meets professional licensure requirements for?
b. The academic and professional infrastructure in place (including faculty) to support the proposed program.
c. Any aspects of financing the proposed new program not included in the above section. Discuss the method of financing for the proposed program (including extramural funding and other sources) and indicate the extent to which additional state funding, tuition differentials, or program-specific fees may be required.
d. State the number and source of required clinical/practical placements, if applicable. Determine whether it is the students' or the institution's responsibility to secure clinical/practical placements and discuss how that expectation will be communicated to students and prospective students. Describe how the institution will ensure that proposed clinical/practical sites are appropriate.

IX. Contact: (List the names, titles, e-mail addresses and telephone numbers of the person(s) responsible for planning the proposed program, including the SACS COC liaison.)

Position Title	Name	E-mail Address	Telephone
Associate Professor	Evan Couzo	ecouzo@unca.edu	828.251.6026
Associate Professor	Kathleen Lawlor	klawlor@unca.edu	828.250.3983
Director of NEMAC	Karin Rogers	krogers@unca.edu	828.250.3892
SACS COC Liaison	Deaver Traywick	traywick@unca.edu	828.251.6001

Signatures. This Request for Preliminary Authorization has been reviewed and approved by the appropriate institutional committees and authorities and has my support.

Position Title	Signature	Date

Chancellor		5/10/2023
Provost		5/10/2023

(Only complete below for partner institution if this is a joint degree program proposal)

Position Title	Signature	Date
Chancellor		
Provost		

		Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
	Current Program Uses (if applicable)							
1	Tenure/Tenure-Track Faculty							$ -
2	Non Tenure-Track Faculty							$ -
3	Graduate Student Support							$ -
4	EHRA Non-Faculty Positions							$ -
5	Student Support (Scholarships)							$ -
6	Libraries							$ -
7	Supplies and Materials							$ -
8	Travel, Communications, and Fixed Charges							$ -
9	Equipment and Technology							$ -
10	Facility Repair and Renovation							$ -
11	Other (Identify)							$ -
12	**Total Current Uses**	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Proposed New Program Uses							
13	Tenure/Tenure-Track Faculty*	10,000	135,000	135,000	135,000	135,000	135,000	$ **685,000**
14	Non Tenure-Track Faculty*		23,400	23,400	23,400	23,400	23,400	$ **117,000**
15	Graduate Student Support*							$ -
16	EHRA Non-Faculty Positions*	5,000	61,000	61,000	61,000	61,000	61,000	$ **310,000**
17	Student Support (Scholarships)		7,500	7,500	7,500	7,500	7,500	$ **37,500**
18	Libraries							$ -
19	Supplies and Materials		10,000	5,000	2,500	2,500	2,500	$ **22,500**
20	Travel, Communications, and Fixed Charges	15,000	15,000	15,000	15,000	15,000	15,000	$ **90,000**
21	Equipment and Technology		30,000	10,000				$ **40,000**
22	Facility Repair and Renovation							$ -
23	Facility New Construction or Expansion							$ -
24	Other (Identify) - Admin. Assist.; Community Partners, etc.; Evaluat		71,000	71,000	71,000	71,000	71,000	$ **355,000**
25	**Total New Uses**	$ **30,000**	$ **352,900**	$ **327,900**	$ **315,400**	$ **315,400**	$ **315,400**	$ **1,657,000**
26	**Total Proposed Program Uses**	$ **30,000**	$ **352,900**	$ **327,900**	$ **315,400**	$ **315,400**	$ **315,400**	$ **1,657,000**

Comments

year 0 stipends; 100% director salary (might be shared between director and assoc. director)
3 hrs of adjuncts per semester ($1400/hr); 3 hrs professor of practice per semester ($2500/hr)

NEMAC salary: 3 hrs per semester and 6 hrs summer
student travel grants for capstone project (only students outside of a given radius)

travel and recruitment
workstations and large monitors for MSCR space

Admin salary+benefits ($61k); honoraria for community partners ($10k)