MORGAN STATE UNIVERSITY
GROWING THE FUTURE, LEADING THE WORLD

Office of the President

August 16, 2021

The Honorable Dr. James D. Fielder, Jr.
Maryland Higher Education Commission
6 N. Liberty Street, 10th Floor
Baltimore, MD 21201

Dear Dr. Fielder,

On behalf of Morgan State University, please find attached a new academic program proposal to establish the *"Bachelor of Science Degree in Coastal Science and Policy"* which was approved by the Board of Regents earlier this month.
If additional information is required, please contact me via david.wilson@morgan.edu or (443)885-3200.

Sincerely,

Dr. David Kwabena Wilson
President

cc: Dr. Patricia Williams-Lessane, Associate Vice President for Academic Affairs, MSU
        Dr. Farzad Moazzami, Associate Vice President for Academic Affairs, MSU
        Dr. Hongtao Yu, Dean, School of Computer, Mathematical and Natural Sciences, MSU
        Dr. Emily Dow, Assistant Secretary for Academic Affairs, Maryland Higher Education Commission

Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Morgan State University
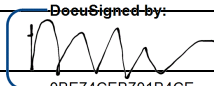
Each <u>action</u> below requires a separate proposal and cover sheet.

- ⦿ New Academic Program
- ○ New Area of Concentration
- ○ New Degree Level Approval
- ○ New Stand-Alone Certificate
- ○ Off Campus Program

- ○ Substantial Change to a Degree Program
- ○ Substantial Change to an Area of Concentration
- ○ Substantial Change to a Certificate Program
- ○ Cooperative Degree Program
- ○ Offer Program at Regional Higher Education Center

Payment Submitted:	⦿ Yes ○ No	Payment Type:	⦿ R*STARS # ○ Check #	Payment Amount:	$850	Date Submitted:	8/4/2021

Department Proposing Program	School of Computer, Mathematical, and Natural Sciences
Degree Level and Degree Type	Bachelor of Science
Title of Proposed Program	Coastal Science and Policy
Total Number of Credits	120
Suggested Codes	HEGIS: 40418.00 CIP: 30.3201
Program Modality	⦿ On-campus (Both) ○⦿ Distance Education (*fully online*)
Program Resources	○ Using Existing Resources ⦿ Requiring New Resources
Projected Implementation Date	○ Fall ⦿ Spring ○ Summer Year: 2022
Provide Link to Most Recent Academic Catalog	URL: **catalog.morgan.edu**

Preferred Contact for this Proposal	Name:	Farzad Moazzami
	Title:	Associate Vice President for Academic Affairs
	Phone:	(443) 885-3350
	Email:	farzad.moazzami@morgan.edu

President/Chief Executive	Type Name:	Dr. David Wilson, President
	Signature:	*DocuSigned by:* [signature] 0BE74CEB701B4CE... Date: 08/16/2021
	Date of Approval/Endorsement by Governing Board:	08/03/2021

'Morgan State University
Proposal for a
Bachelor of Science Degree in Coastal Science and Policy

Morgan State University (Morgan)[1] proposes a new instructional undergraduate program, a Bachelor of Science degree in Coastal Science and Policy (hereafter the "BS in Coastal Science and Policy" or the "Program"). The Program will be offered through the Division of Coastal Science[2] in the School of Computer, Mathematical, and Natural Sciences (SCMNS).[3]

The BS in Coastal Science and Policy is designed for students to gain knowledge in coastal science and policy, develop skills needed to succeed in coastal and environmental science fields, understand the policies governing coastal science and economics, enjoy gainful employment as natural or social scientists in state and federal governments, private laboratories or consulting firms, the nonprofit sector, or academia.

The BS in Coastal Science and Policy will be offered via online courses, distance learning, and on campus as a traditional face-to-face degree program. Students will have the opportunity to either begin their studies at a partner community college or complete all courses at Morgan.

A. *Centrality to Institutional Mission and Planning Priorities*

A.1. Provide a description of the Program, including each area of concentration (if applicable), and how it relates to the institution's approved mission.

A.1.1. Program Description:
The BS in Coastal Science and Policy will holistically integrate the study of the natural sciences (e.g., biology, chemistry, earth science, physics) and the social sciences (e.g., economics, political science) at the Morgan Patuxent and Environmental and Aquatic Research Laboratory (PEARL).[4] The Program will equip students with interdisciplinary and transdisciplinary skills that enable students to explore the environmental, social, and economic dimensions of coastal resource science and management. Through this program, students will develop the skills needed to obtain entry-level employment in a wide range of fields in state and federal governments, private laboratories or consulting firms, the non-profit sector or to further their education through graduate coursework at another institution.

Utilizing the capabilities (instrumentation, equipment, facilities) and location (near the mouth of the Patuxent River in the Chesapeake Bay) of the PEARL, this new program will focus on place-based learning as much as possible. Students will have opportunities to work hands-on in the PEARL laboratories through their required coursework and while working with a PEARL researcher to conduct

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[1] Appendix 1 - Morgan State University

[2] Appendix 2 - Division of Coastal Science

[3] Appendix 3 - School of Computer, Mathematical and Natural Sciences

[4] Appendix A.1.2 - Patuxent Environmental and Aquatic Research Laboratory

their own scientific research. Students will also have opportunities to participate in research cruises in the Chesapeake Bay, visit Annapolis and Washington, D.C. to meet with policymakers, and visit areas around the state to study and view coastal features and resources. To increase accessibility and allow for students to focus on their studies at the PEARL, students will have the opportunity to complete the general studies coursework at Morgan State in Baltimore or at a local community college. In this way, this program will cater to a wider audience and provide accessible options to interested students.

A.1.2. How Coastal Science & Policy Relates to Morgan's Mission
The overall program description and its accessibility (allowing students to start their undergraduate careers at community colleges or at Morgan) fit well within Morgan's Mission Statement (in italics):

> *Morgan State University serves the community, region, state, nation, and world as an intellectual and creative resource by supporting, empowering, and preparing high-quality, diverse graduates to lead the world. The University offers innovative, inclusive, and distinctive educational experiences to a broad cross section of the population in a comprehensive range of disciplines at the baccalaureate, master's, doctoral, and professional degree levels.*

Through this Program, Morgan will provide the community with a diverse cohort of coastal scientists and policymakers. In 2016, only 21.6% of the total science and engineering undergraduate degrees were awarded to underrepresented minorities (blacks or African Americans, Latino or Hispanic, American Indians, and Native Alaskans).[5] This program, hosted at a historically black college or university (HBCU), will set an excellent example for other schools to emphasize diversifying scientific disciplines. To increase accessibility, the Program would continue these pursuits through a collaboration with regional community colleges to address societal issues in coastal areas, both in the rural to suburban areas near the PEARL, as well as near the urban areas surrounding Baltimore City and Morgan.

> *Through collaborative pursuits, scholarly research, creative endeavors, and dedicated public service, the University gives significant priority to addressing societal problems, particularly those prevalent in urban communities.*

Morgan has been hailed by the state of Maryland as "Maryland's preeminent public urban research university," and the addition of this Program will strengthen this designation. While coastal issues are generally thought to be of more importance to suburban and rural populations, many urban centers, such as Baltimore, directly interact or are affected by changes to coastal ecology and economics. Approximately 72% of Maryland residents live in a county or city that contains coastal shorelines, and of these coastal areas, four are considered to be more than 90% urban by the 2010 census (Baltimore City, Baltimore County, Prince George's County, and Anne Arundel County). The BS in Coastal Science and Policy will give Morgan students a way to serve their community by studying the ecologically and economically valuable coastlines of Maryland.

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[5] National Science Foundation, National Center for Science and Engineering Statistics. 2019. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019.* Special Report NSF 19-304. Alexandria, VA. Available at **https://www.nsf.gov/statistics/wmpd**.

A.2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms it is an institutional priority.

In "Growing the Future, Leading the World: the Strategic Plan for Morgan State University (2011-2021)"[6] President Wilson outlines broad goals that guide future academic programs and services. These include:

Goal 1: Enhancing Student Success
This Program supports Morgan's goal in leading the state of Maryland in graduating underrepresented minority students through challenging, internationally relevant academic curricula. Students will benefit from curricula focusing on advancements in coastal science and changes in policy that affect local, regional, and international coastal systems. This Program will also advance two initiatives of this goal, including: Increasing enrollment by "expanding the number of collaborative relationships with regional community colleges and higher education centers, developing high demand online degree programs"

Through this Program, students will be able to take their general education and introductory courses through Morgan or at local community colleges. Morgan will work to create clear Articulation Agreements for this Program with community colleges such as the College of Southern Maryland, Anne Arundel Community College, and Prince George's Community College. Additionally, as explained in Section P: "Adequacy of Distance Education Programs," students will benefit from a range of lecture styles, including traditional face-to-face, online, and online courses with enhanced lecture options.
- "Enhancing students' educational experiences by expanding the curriculum to include more internships" and "more interdisciplinary courses"

Coastal science and policy encompass a wide range of disciplines, which directly translate to the interdisciplinary and transdisciplinary course offerings for this Program. The list of offered courses (see Section G.4) provides an array of topics that span current events, new and developing science, and the changes to and effects of current policies.

Goal 2: Enhancing Morgan's Status as a Doctoral Research University
While this is an undergraduate program, the BS in Coastal Science will enhance the doctoral research conducted at Morgan and at the PEARL. Students in the Program will be required to complete six credit hours of research with a researcher at the PEARL. Research shows that the act of mentoring students provides faculty mentors with "personal satisfaction, fulfillment, rejuvenation, networking, friendship and support, and reputational gains for talent development."[7] Additionally, research has shown that faculty

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[6] Growing the Future, Leading the World: the Strategic Plan for Morgan State University (2011-2021), Strategic Goals are presented in Appendix A.2.
[7] Johnson, W. (2016). On Being a Mentor. New York: Routledge, https://doi.org/10.4324/9781315669120

perceptions of the outcomes of undergraduate research, including scholarly productivity, professional rejuvenation, and a desire to maintain their research efforts.[8,9,10]

Goal 4: Growing Morgan's Resources

This goal states that Morgan will grow its human capital by investing in the "professional development of faculty, staff, and students." This Program expands Morgan's human capital through recruitment of students from local community colleges and by providing an enticing degree program not offered at other Maryland universities.

Goal 5: Engaging with the Community

This goal focuses on engagement with "community residents and officials in the use of knowledge derived from faculty and student research." This Program will address this goal through one of the outlined initiatives which focuses on "applying research, instruction, and public service to improve the cultural and social quality of life for the residents of communities surrounding the University." As a satellite campus of Morgan located in southern Maryland, research conducted at the PEARL is directly related to the fishing and aquaculture practices of the local community. Current research at the PEARL, in which students will be involved, focuses on oysters, crab populations, and the ecology of the Chesapeake Bay. This research is used to inform the community of best practices and to provide sound advice to policymakers.

A.3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation.

The BS in Coastal Science and Policy was developed assuming that the program would be sustained through the use of existing resources. The expertise of the faculty and staff at the PEARL include coastal chemistry, biology, ecology, aquaculture, economics, and policy. Morgan and the PEARL expect that tuition revenue will support the engagement of the PEARL faculty and staff, with the potential to hire additional faculty as the program grows. It is anticipated that this major will also be a catalyst for securing multi-institutional research and education grants from federal, state, and nonprofit agencies and other sources.

A.4. Provide a description of the institution's commitment to:

A.4.a. Ongoing administrative, financial, and technical support of the proposed program

The BS in Coastal Science and Policy has received full support from Morgan's President, Dr. David Wilson, from the Provost and Senior Vice President for Academic Affairs, Dr. Lesia Crumpton-Young. While the Program will require no additional funding from Morgan, the University has committed to establish the BS in Coastal Science and Policy with full administrative and technical support.

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[8] Linda S. Behar-Horenstein, Kellie W. Roberts & Alice C. Dix (2010) Mentoring Undergraduate Researchers: An Exploratory Study of Students' and Professors' Perceptions, Mentoring & Tutoring: Partnership in Learning, 18:3, 269-291, DOI: 10.1080/13611267.2010.492945

[9] Dolan, E. and D. Johnson (2010). The undergraduate-postgraduate-faculty triad: Unique functions and tensions associated with undergraduate research experiences at research universities. *CBE Life Sciences Education* 9: 543-553. DOI: 10.1187/cbe.10 – 03– 0052

[10] Evans, R., & Witkosky, D. (2004). Who gives a damn what they think anyway?: Involving students in mentored research. *National Social Science Journal*, *23*(1), 21-30.

A.4.b. Continuation of the program for a period of time sufficient to allow enrolled students to complete the program

Morgan is committed to supporting the needs of this new Program fully and can launch the program immediately using existing institutional resources. Administrative support will be provided by Academic Affairs and SCMNS. Any technical needs will be incorporated into the annual budgeting process.

Morgan is committed to the continuation of this Program for at least enough time for it to launch in the Fall 2022 semester and see class through to the completion of the major. In the event that the program is discontinued, the courses will be offered for a reasonable time period so that enrolled students can finish the program. The faculty and administrative infrastructure will still be in place to work with students who have not finished the program.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan

The BS in Coastal Science and Policy is consistent with the State of Maryland's goals to "ensure equitable access to affordable and quality postsecondary education for all Maryland residents, promote and implement practices and policies that will ensure students success, and foster innovation in all aspects of Maryland higher education to improve access and student success."[11] The State of Maryland has a national and international reputation for being "among the nation's leaders of innovation in higher education, highly ranked in research and development with 72 federal laboratories." Similarly, Morgan State University has been officially designated as Maryland's Preeminent Public Urban Research University, and innovation is one of the institution's core values.

B.1. Demonstrate the demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following:

  a. The need for the advancement and evolution of knowledge

In the Maryland State Plan for Higher Education, it states: "Unbiased, well-informed replication is important to the advancement of knowledge. The ability to share ideas, results, findings, and best practices is imperative for innovation."[12]

Science is an ever-changing field, with new findings published daily. In this time of advancing scientific knowledge, the National Science Foundation states that the "innovation capacity of the United States - and its prosperity and security - depends on an effective and inclusive STEM education ecosystem."[13] This Program will immerse a diverse cohort of students in discussions of current events and research and involved in their own research projects. These experiences provide graduates with the critical thinking and laboratory skills necessary for joining the workforce.

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[11] "2017-2021 Maryland State Plan for Postsecondary Education: Executive Summary" - Found at https://mhec.state.md.us/About/Pages/2017StatePlanforPostsecondaryEducation.aspx

[12] State Plan pg. 72

[13] National Science and Technology Council, Committee on STEM Education (2018). Charting a Course for Success: America's Strategy for STEM Education. https://www.whitehouse.gov/wp-content/uploads/2018/12/STEM-Education-Strategic-Plan-2018.pdf

b. Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education.

The lack of diversity in science is an ongoing problem, with 86% of PhDs in ocean, atmospheric, and earth sciences awarded to non-Hispanic white people.[14] In 2012, in the top 100 earth science departments, only 3.8% of tenured or tenured track faculty members were from underrepresented minorities,[15] and only 1.95% of all undergraduate degrees in Earth, Atmospheric, and Ocean Sciences were awarded to underrepresented minorities.[16] Of those underrepresented minorities who study STEM subjects, research shows that they often face discrimination and microagresions within their departments.[17,18] To counter this discrimination and increase minority retention in STEM topics, Hurtado et al. (1999)[19] recommend the following (among other suggestions):

- "Involve faculty in efforts to increase diversity that are consistent with their roles as educators and researchers"
- "Increases students' interaction with faculty outside class by incorporating students in research and teaching activities"

As part of Maryland's largest HBCU and through partnerships with local community colleges, this Program will recruit students from an array of backgrounds, ensuring a diverse student population. Faculty and staff involved in this Program will participate in "Unconscious Bias" training and similar programming to ensure students are part of a welcoming and inclusive Program. In addition, to "increase students' interaction with faculty outside class," students will be required to take research credits, where they will work with a PEARL faculty researcher to conduct independent research during their senior year.

c. The need to strengthen and expand the capacity of historically black institutions to provide high quality and unique educational programs.

An important strategy of the State Plan is promoting student success for Maryland to "continue supporting the unique missions of Historically Black Colleges and Universities (HBCUs)."[20] As the largest and most comprehensive of the State's four public HBCUs, Morgan is a major economic engine

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[14] Bernard, R.E., and H.G. Cooperdock (2018). No progress on diversity in 40 years. *Nature Geoscience* 11: 292-295.

[15] Nelson, D.J. (2017). Diversity of science and engineering faculty at research universities. In *Diversity in the Scientific Community Volume 1: Quantifying Diversity and Formulating Success* (eds D.J. Nelson and H.N. Cheng). pp. 15-86 (ACS, Washington D.C.)

[16] Johnson, A., M.J. Huggans, D. Siegfried, and L. Braxton. 2016. Strategies for increasing diversity in the ocean science workforce through mentoring. Oceanography 29(1):46–54. NSF (National Science Foundation National Center for Science and Engineering Statistics). 2015. Women, Minorities, and Persons with Disabilities in Science and Engineering: 2015. Special Report NSF 15-311, National Science Foundation, Arlington, VA.

[17] Ong, M., C. Wright, L. Espinosa, and G. Orfield (2011). Inside the double bind: A synthesis of empirical research on undergraduate and graduate women of color in science, technology, engineering, and mathematics. *Harvard Educational Review* 81(2): 172-208.

[18] Cole, D., and A. Espinoza. (2008). Examining the academic success of Latino students in Science Technology Engineering and Mathematics (STEM) Majors. *Journal of College Student Development* 49(4): 285-300.

[19] Hurtado, S., J. Milem, A. Clayton-Pedersen, and W. Allen (1999). *Enacting Diverse Learning Environments: Improving the Climate for Racial/Ethnic Diversity in Higher Education.* ASHE-ERIC Higher Education Report Volume 26, No. 8. Washington, DC: The George Washington University, Graduate School of Education and Human Development.

[20] State Plan. Pg.49

for the City of Baltimore and the State of Maryland annually producing $1 billion in statewide economic impact, supporting 6,500 jobs and generating $47 million in state tax revenues.[21] Morgan is uniquely positioned to offer the BS in Coastal Science and Policy as it already leads other higher education institutions in the State in awarding bachelor degrees to African American students in STEM related disciplines and is equipped with a marine science laboratory, the PEARL. The BS in Coastal Science and Policy is a unique, innovative Program that will strengthen and expand the capacity of Morgan State University to recruit new students, enhance diversity in coastal science, and provide high quality educational experiences for our undergraduates.

B.2. Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education

Access: Ensure equitable access to affordable and quality postsecondary education for all Maryland residents.

In addition to its well established array of baccalaureate (45), master's (38), doctoral and professional degrees (17), Morgan has also established a strong online presence through the establishment of the office of Morgan Online, an administrative unit for oversight of the new innovative online degree and certificate programs offered by the University. The intent in establishing these online programs is, in large measure, an effort by the University to fulfill its access mission by offering highly flexible degree programs on campus as well as online to expand educational opportunities for traditional students as well as for working students, adult learners, and non-traditional students. As noted in the State Plan,[22]

> *"Non-traditional students now comprise the majority of postsecondary students. Many students have delayed initial enrollment or are returning after earlier enrollment, enroll part-time, are financially independent of parents, support a family, or work full-time. These students have needs and expectations that are often quite different than those of the traditional high school-to-college student."*

To support both traditional (those who enter a four year degree in their first year) and non-traditional (those who begin at community college) students, some courses for this Program will be designed as traditional face-to-face courses but will also be offered simultaneously as enhanced online courses. This design is discussed more in Section P: "Adequacy of Distance Education Programs." In addition, Morgan will pursue articulation agreements that are drafted to include clear, concise information that enables students to transfer their credits easily.

Success: Promote and implement practices and policies that will ensure student success.

Morgan has a number of well-established initiatives to increase the educational success of underserved populations. A key aspect of student success at Morgan is the 50 by 25 Campaign to increase the six-year graduation rate to 50% by 2025. The President reported to the General Assembly:[23]

> *"Beginning with the entering class of 2010, the University has significantly increased its freshman-sophomore and sophomore-junior retention rates. Second-year retention rates have been above 70% for the past eight years. Third-year retention rates are at 60%. Fourth year retention rates have risen to 56%. Our six-year graduation rates have increased from 31% for the fall 2009 cohort to 39% for the fall 2012 cohort."*

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[21] https://www.Morgan.edu/economicimpact.

[22] State Plan pg. 14.

[23] Dr. David Wilson. Legislative Testimony FY 2020 Operating Budget. February 2019: Pg. 9

The BS in Coastal Science and Policy will be integrated into an ongoing set of strategic initiatives focused on ensuring student success. The University has storied history of success in graduating African Americans, particularly African American women, and other underrepresented minorities with bachelor degrees in STEM disciplines.

Innovation: Foster innovation in all aspects of Maryland higher education to improve access and student success.
In February (2020), Morgan celebrated its 10th Annual 'Innovation Day' in Annapolis, MD at the Miller Senate Office Building. Morgan Innovation Day (MID), serves in part as an annual progress report on the State's premier public urban research institution. Morgan's President Wilson stated, "Taking the lead in innovation and providing a pipeline to new technologies is consistent with Morgan's strategic goals and our historical mission of preparing a diverse student body to help the world meet tomorrow's challenges." The BS in Coastal Science and Policy enhances Morgan's tradition of providing unique, high demand, and innovative academic programs.

No higher education institution in Maryland offers a bachelor's degree in coastal science and policy. While other programs focus on aquatics or open ocean studies, this Program is designed to study the intricacies of coastal ocean science and the policies that play key roles in managing, restoring, and utilizing the resources of the coastal ocean.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State

C.1. Describe potential industry or industries, employment opportunities, and expected level of entry (ex: mid-level management) for graduates of the proposed program.
C.1.1. Potential Industries and Employment Opportunities

The coastal science and policy community offers many potential opportunities and capabilities. According to the American Geosciences Institute,[24] geoscientists, including coastal scientists, can find potential careers in and outside of the geosciences. Potential career areas within the geosciences include state, local, or federal government, research institutes, nonprofits or NGOs, among many others. In recent years (2010-2017), students who graduated with a B.A. or B.S. in a geoscience field primarily found opportunities in environmental services, federal government, and four-year universities. Outside of the geosciences, graduates found opportunities in finance, recreation, transportation, nonprofits, and other areas which require the background knowledge that is gained through an undergraduate degree in the geosciences. Alternatively, graduates of this Program may choose to pursue a graduate degree.

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[24] American Geosciences Institute: https://www.americangeosciences.org/

Industries of interest for graduating students seeking a job within the geosciences
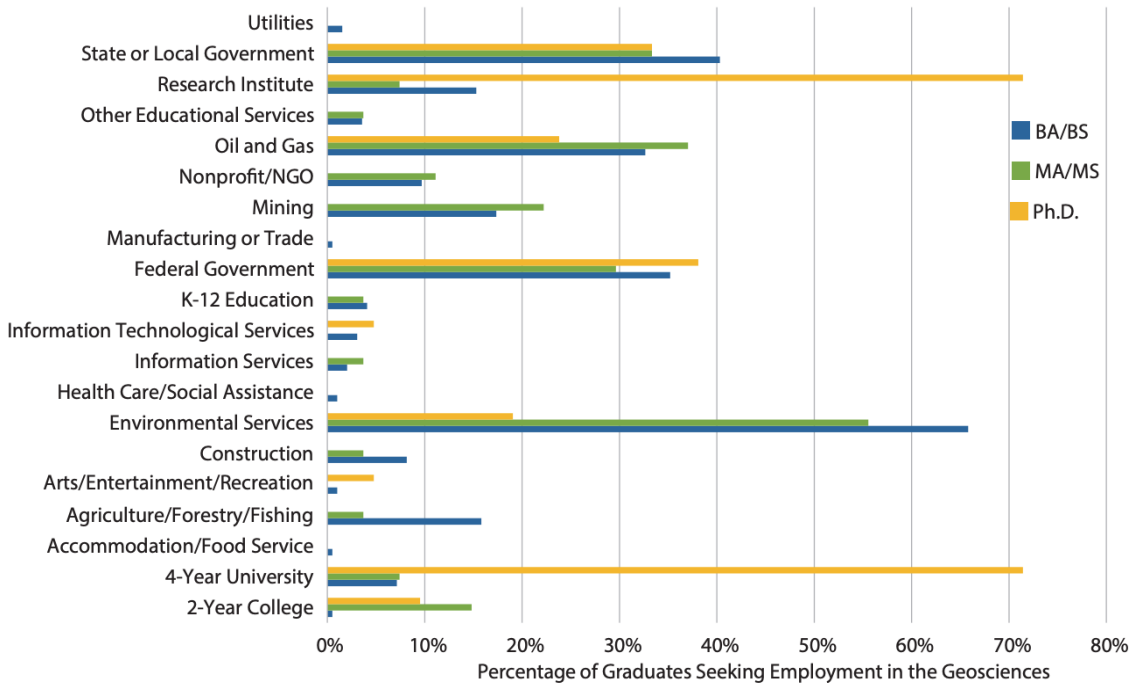
American Geosciences Institute, Status of the Geoscience Workforce 2018

Industries where graduating students have accepted a job within the geosciences
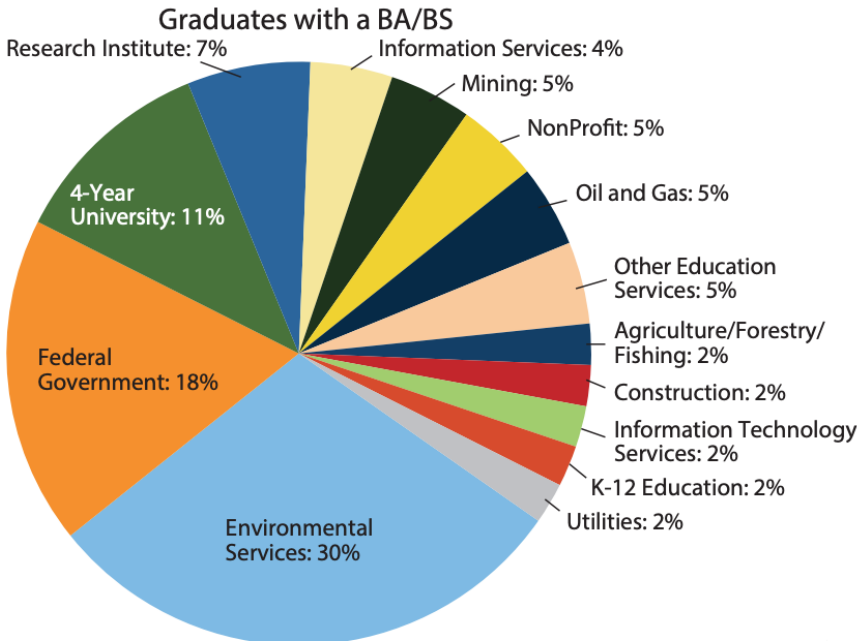
Graduates with a BA/BS

- Research Institute: 7%
- Information Services: 4%
- Mining: 5%
- NonProfit: 5%
- Oil and Gas: 5%
- 4-Year University: 11%
- Other Education Services: 5%
- Federal Government: 18%
- Agriculture/Forestry/Fishing: 2%
- Construction: 2%
- Information Technology Services: 2%
- K-12 Education: 2%
- Utilities: 2%
- Environmental Services: 30%
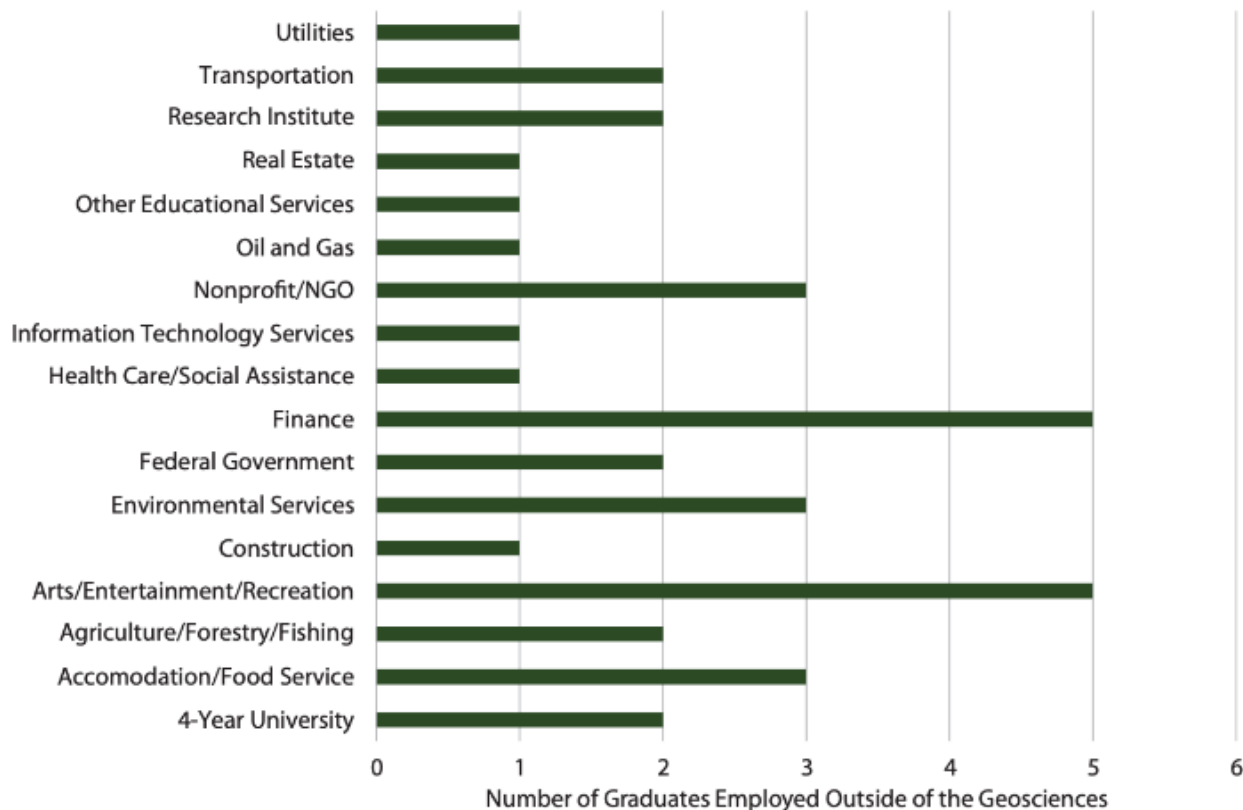
American Geosciences Institute, Status of the Geoscience Workforce 2018

Industries where graduating students have accepted a job outside the geosciences

American Geosciences Institute, Status of the Geoscience Workforce 2018

C.1.2. Expected Level of Entry

According to the Bureau of Labor Statistics,[25] environmental scientists and specialists, including those specializing in coastal science, often begin their careers as field analysts, research assistants, or technicians in laboratories or offices. Some begin their careers in related fields, such as hydrology or engineering before moving into the more interdisciplinary environmental and coastal science fields. As they gain experience, they earn more responsibilities and may be promoted to supervisor of technicians or other scientists.

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[25] https://www.bls.gov/ooh/life-physical-and-social-science/environmental-scientists-and-specialists.htm

C.2. Present data and analysis projecting market demand and the availability of openings in a job market to be served by the new program.

According to the American Geosciences Institute's Workforce Program,[26] all geoscience fields are projected to see a 6.2% increase in employment between 2018 and 2028. While not specific to coastal science and policy, this shows an increase in employment related to aspects of coastal science and policy, such as conservation, hydrology, and environmental science, which can lead to higher employment rates of graduates of this program, compared to non-geoscience graduates. In addition, due to a boost in geoscience graduates in the early 1980s followed by a decline in geoscience enrollment in the mid-1980s, there will be a generation of geoscientists retiring soon. Those who began their careers in the early 1980s will be nearing retirement in the coming years, boosting job availability upon their retirement.[27]
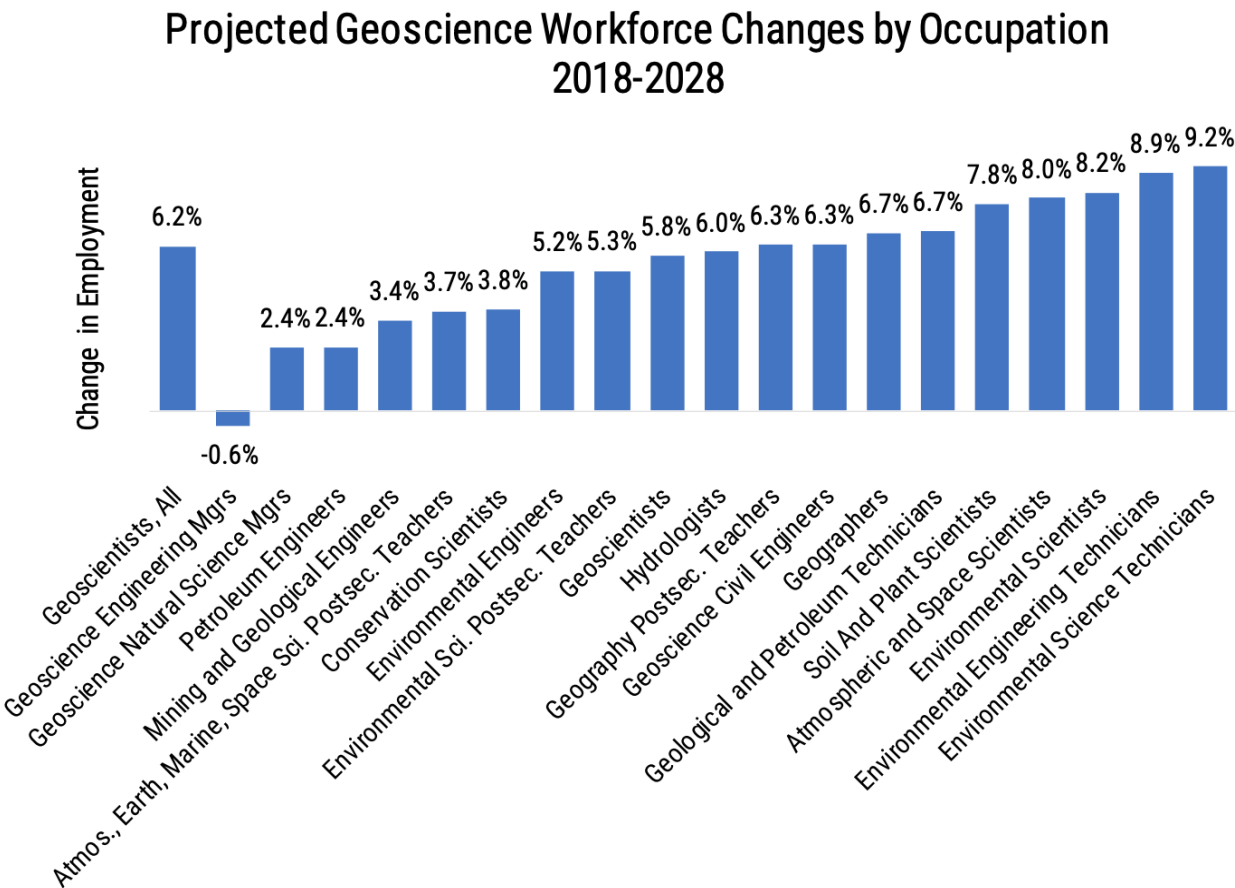
Projected Geoscience Workforce Changes by Occupation 2018-2028

Source: AGI Geoscience Workforce Program; Data derived from the U.S. BLS Employment Projections

American Geosciences Institute, Status of the Geoscience Workforce 2018

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[26] https://www.americangeosciences.org/workforce
[27] Perkins, S. 2011. Earth works. *Nature: Careers* 473: 243-244.

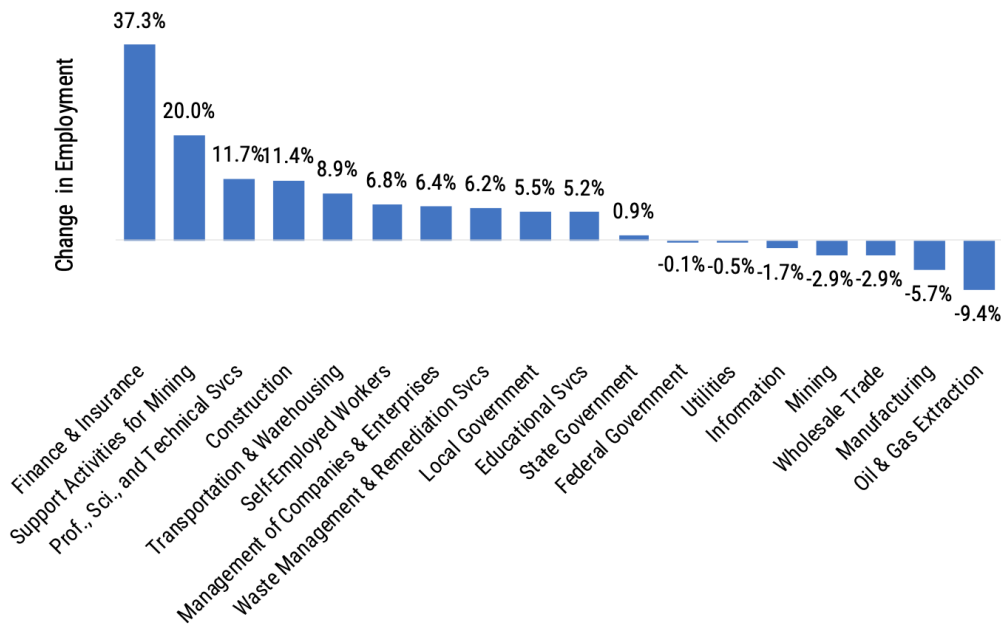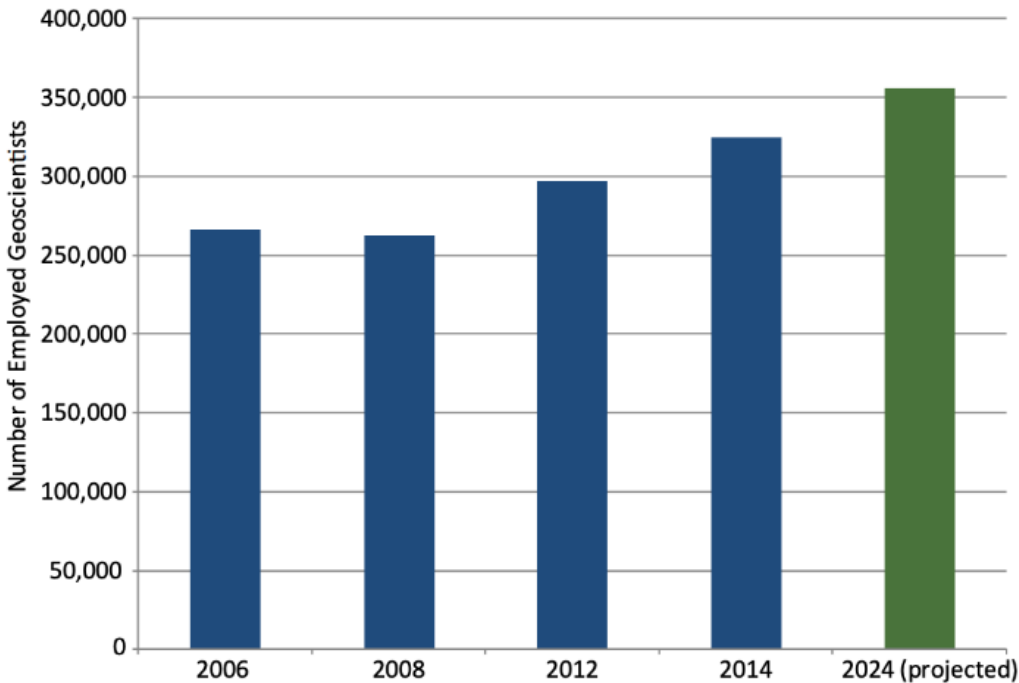## Projected Geoscience Workforce Changes by Industry
2018-2028

Source: AGI Geoscience Workforce Program; Data derived from the U.S. BLS Employment Projections

American Geosciences Institute, Status of the Geoscience Workforce 2018

Total Number of Employed Geoscientists in the United States by Year

American Geosciences Institute, Status of the Geoscience Workforce 2018

C.3. Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable data on the educational and training needs and the anticipated number of vacancies expected over the next 5 years.

The U.S. Bureau of Labor Statistics[28] showed that future environmental scientists and specialists can expect job growth rates of 8% between 2018 and 2028, faster than the average occupational growth rates, with an increase of 7,000 jobs over the next ten years. Employment of geoscientists, such as coastal scientists, is expected to grow 6% between 2018 and 2028, also faster than the national average.

The ocean economy is represented by six business sectors: living resources, marine construction, marine transportation, offshore mineral extraction, ship and boat building, and tourism and recreation. According to the National Oceanic and Atmospheric Administration's Office for Coastal Management (NOAA OCM):[29,30]

● In 2018, there were 154,000 ocean-dependent business establishments that employed more than 2 million people and paid $162 billion in wages.
● The ocean economy produces about $373 billion in goods and services annually
● The ocean economy grew by 5.8% between 2017 and 2018, faster than the 5.4% growth of the total U.S.
● The ocean economy recovered from the 2007 recession faster than the U.S. economy.

In addition, the coastal ocean is in a constant state of flux due to the effects of climate change, such as sea level rise, increased storm events and warming temperatures. NOAA OCM estimates that by 2050, up to $106 billion worth of coastal property will likely be below sea level, annual losses from hurricane activity are expected to grow by $7.3 billion, and approximately 27 to 50 days per year will have temperatures over 90ºF. With all of these factors, graduates entering the coastal ocean economy should have an understanding of the natural and anthropogenic forcings that affect the coastal ocean and the current policies and the processes to change these policies.

C.4. Provide data showing the current and projected supply of prospective graduates.

Due to increased employment potential, more students are enrolling and graduating from geoscience (including marine and coastal science) programs. This Program will not only provide a unique opportunity for those wanting to study coastal science and policy, but as it is located within Maryland's largest HBCU, it will also help to diversify this field.

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[28] Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook* on the Internet at https://www.bls.gov/ooh/life-physical-and-social-science/geoscientists.htm (visited December 12, 2019).

[29] NOAA Office for Coastal Management. https://coast.noaa.gov/

[30] NOAA Media Release - "Marine Economy in 2018 grew faster than U.S. overall" https://www.noaa.gov/media-release/marine-economy-in-2018-grew-faster-than-us-overall

- Christopher Keane
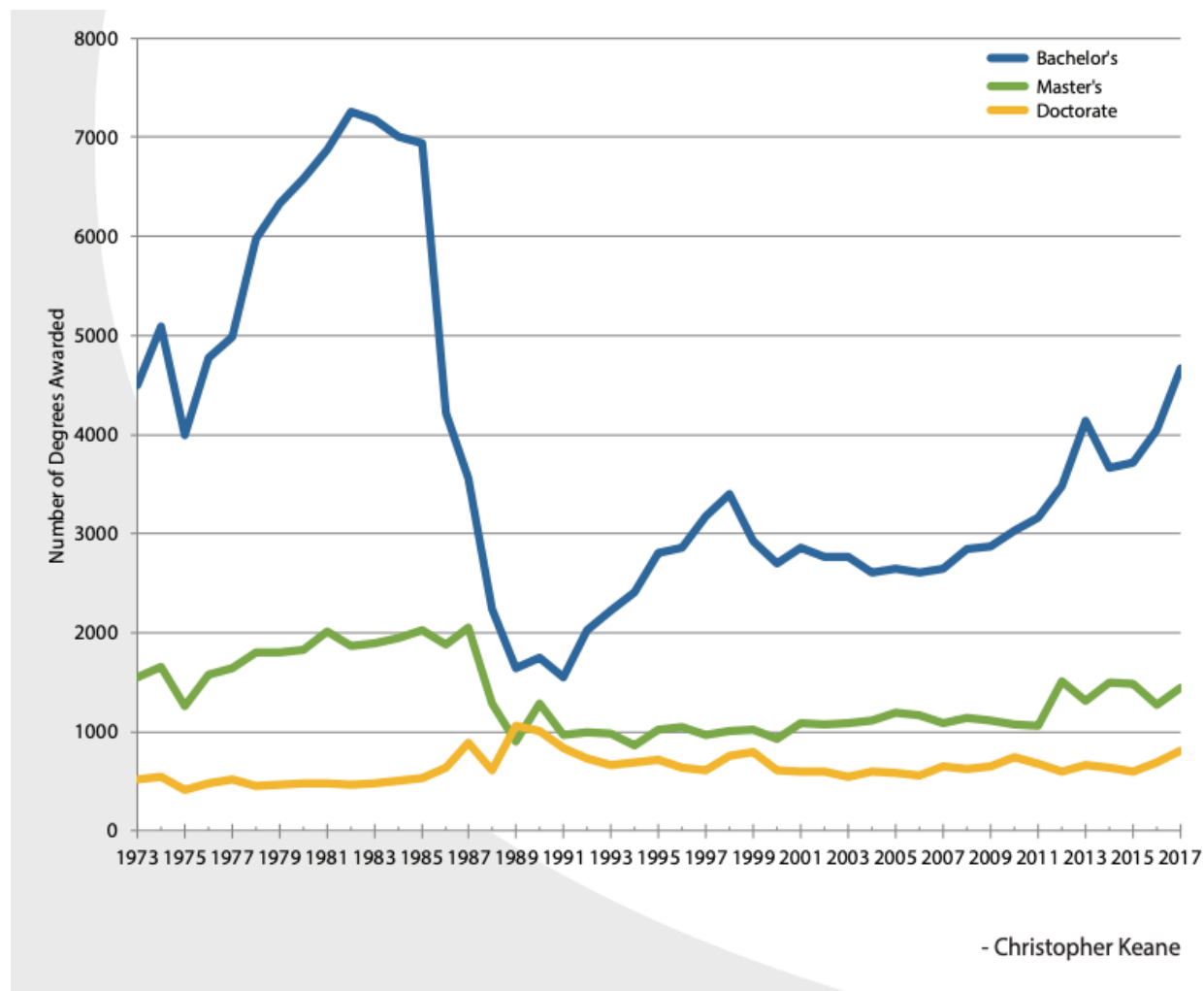
U.S. Geoscience Degrees Granted, American Geosciences Institute

D. Reasonableness of Program Duplication

D.1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.

In the state of Maryland, there are two other programs that offer a Bachelor of Science degree that are related to the proposed Program. First, Frostburg University offers a Bachelor of Science degree in Wildlife and Fisheries. This program focuses on wildlife and fisheries in the Allegheny Mountains, in particular those in mountain ridges, meadows, swamps, bogs, lakes, and streams. The degree from Frostburg prepares students for professions focused exclusively on freshwater habitats, while the Program proposed here will focus on coastal habitats, which can range from fresh to saltwater environments. Second is the Bachelor of Science degree in Atmospheric and Oceanic Sciences from the University of Maryland at College Park. According to their program description, this "major has been designed to teach broad based knowledge in meteorology, oceanography, climate and air pollution." Based on their major

requirements, students in this program partake in courses that are focused on broad oceanographic and meteorological topics, such as "Dynamics of the Atmosphere and Oceans" and "Atmospheric Chemistry and Climate/Air Pollution." Alternatively, the proposed Program will focus specifically on coastal environments, with an emphasis on the Chesapeake Bay coastlines. Additionally, neither program focuses on the policies that govern aquatic bodies, both freshwater and saltwater.

D.2. Provide justification for the proposed program.

The complexity of coastal ocean ecosystems differentiates them from their open ocean counterparts and justifies the need for a program that focuses on these economically and ecologically important habitats. The National Oceanographic and Atmospheric Administration (NOAA) has presented data that show that of the 95,439 statute miles of United States coastline,[31] 3,190 miles exist in Maryland alone.[32] Of the 35 United States states and territories with coastline, Maryland has the 10th most miles of coastline, rivaling larger states such as Washington and New York. NOAA's State of the Coast from March 2013[33] stated that, as of the 2010 census, 4,148,642 of the total 5,773,552 (71.8%) Marylanders lived in coastal shoreline counties (those that are directly adjacent to the open ocean or major estuaries). Finally, NOAA estimates that 31 "billion-dollar-disasters"[34] have occurred along Maryland coastlines between 1980-2018, including 10 tropical cyclones, 3 flooding events, and 18 severe storms.[35] Alongside the population and financial demographics, Maryland coastlines are also home to the famous Maryland blue crabs, oysters, and fish that have sustained local fisheries for over a century, and many historical and ecologically important state parks and sanctuaries. Despite this, no undergraduate major within Maryland focuses on the science and policies governing these critical areas. The proposed Program would fill this gap in the Maryland higher education system and produce future stewards and managers of these precious ecosystems.

E. Relevance to High-Demand Programs at Historically Black Institutions (HBIs)

E.1. Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBI's.

According to the National Science Foundation's National Center for Science and Engineering Statistics, black or African American Students accounted for 9.01% of all students awarded undergraduate degrees

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[31] NOAA defines shoreline mileage as that of "the outer coast includes offshore islands, sounds, bays, rivers, and creeks to the head of tidewater or to a point where tidal waters narrow to a width of 100 feet."

[32] NOAA Shoreline Website (shoreline.noaa.gov/faqs.html?faq=2)

[33] National Ocean Service. (2013, March). National Coastal Population Report Population Trends from 1970 to 2020. Retrieved December 4, 2019, from http://oceanservice.noaa.gov/facts/coastal-population-report.pdf

[34] "Drought events, flooding events, freeze events, severe storm events, tropical cyclone events, and winter storm events with losses exceeding $1 billion (CPI-Adjusted)"

[35] NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2019). https://www.ncdc.noaa.gov/billions/

in scientific fields[36] in 2016.[37] The same study also looked at these demographics by individual field of study. Of all science degrees awarded, 1.31% were awarded to students of all ethnicities in students majoring in Earth, Atmospheric, and Ocean Sciences, and only 2.13% of Earth, Atmospheric, and Ocean Sciences degrees were awarded to black or African American Students. Furthermore, black or African American females only accounted for 5.9% of students awarded science undergraduate degrees in 2016, and only 1.0% of students receiving undergraduate degrees in Earth, Atmospheric, and Ocean Sciences were black or African American females. This new degree in Coastal Science and Policy, implemented at an HBI in Maryland, will seek to improve these statistics and provide much needed diversity to the growing field of coastal science. There are no similar programs at Maryland's three other HBIs (Bowie, Coppin, and UMES), and it is expected to have no negative impact on the other Maryland HBIs. The Program is anticipated to be in high-demand and benefit Morgan State University substantially.

F. Relevance to the identity of Historically Black Institutions (HBIs)

F.1. Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs.

Morgan State University prides itself as "Maryland's preeminent public urban research university," and thus offers a range of degrees designed to place students in research fields. Morgan also offers more bachelor's degrees to black or African American students than any other university in Maryland, many of these focused on science and engineering. As of yet, no degrees at Morgan place students in classrooms or laboratories that focus on coastal science although Morgan has the resources to do so via the PEARL. Coastal science is exclusive to neither rural or urban centers, and the creation and implementation of this Program will further Morgan's status as Maryland's "Preeminent Public Urban Research University," diversify the coastal science field, and provide Maryland and the Chesapeake Bay with a cohort of graduates prepared to research and manage Maryland shorelines.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes

G.1. Describe how the proposed program was established, and also describe the faculty who will oversee the program.

The proposed Program was established via collaboration between staff and faculty on Morgan's main campus in Baltimore and at the PEARL. Dr. Hongtao Yu, Dean of the School of Computer, Mathematical and Natural Sciences, supports the establishment of the Program, along with Dr. Lesia Crumpton-Young, Provost and Senior Vice President of Academic Affairs. The Program will be managed by the Division of Coastal Science under SCMNS.

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[36] "Scientific fields" refers to Agricultural Sciences, Biological Sciences, Computer Sciences, Earth, Atmospheric, and Ocean Sciences, Mathematics and Statistics, Physical Sciences, Psychology, and Social Sciences
[37] National Science Foundation, National Center for Science and Engineering Statistics. 2019. *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2019.* Special Report NSF 19-304. Alexandria, VA. Available at https://www.nsf.gov/statistics/wmpd.

The Program

G.2. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.

G.2.1. Educational Objectives of the Program

The educational objectives of the BS in Coastal Science and Policy are to provide students with the knowledge to attain advanced knowledge in the fields of coastal science and policy and to produce graduates with the ability to:
- Solve real-world coastal science and policy problems;
- Analyze and interpret data from coastal science projects;
- Analyze and interpret policies that may impact coastal environments;
- Examine and follow trends in current coastal science research;
- Provide scientifically sound, ethical advice to legislators, stakeholders, and the public;
- Communicate effectively with a range of audiences;
- Recognize the need for and an ability to engage in continuing professional development.

G.2.2. Learning Outcomes of the Program

Upon completing the BS in Coastal Science and Policy program, students will be able to:
- Demonstrate an understanding of core knowledge in coastal science and policy
- Apply critical thinking and analytical skills to solve scientific datasets
- Demonstrate written, visual, and oral presentation skills to communicate scientific knowledge
- Write clearly and persuasively to communicate scientific ideas clearly
- Acquire and synthesize scientific information from a variety of sources
- Apply techniques and use instrumentation to solve coastal science problems
- Demonstrate an understanding of the "tools" available to address policy problems
- Identify the factors that influence the direction of government action
- Describe of the effects of government action
- Recognize the various constituencies that influence how coastal policies are made and the underpinnings of real life policy choices.

G.3. Explain how the institution will:
*   a. Provide for assessment of student achievement of learning outcomes in the program*

Morgan has an Office of Assessment led by Dr. Solomon Alao, the Assistant Vice President for Outcome Assessment and Program Review. This Office supports the strategic initiatives of Morgan by directing the implementation of the Comprehensive Assessment Plan and the General Education Program. The Office also works with other Morgan divisions to collect, analyze, report on and use data related to institutional effectiveness, accreditation, student success, satisfaction and retention, and campus performance against key benchmark indicators.

*   b. Document student achievement of learning outcomes in the program*

Morgan will document student achievement of learning outcomes in the BS in Coastal Science and Policy in accordance with the Morgan Comprehensive Assessment Plan. The Assessment Plan includes all

procedures for collecting, analyzing, reporting on and using data related to the Program effectiveness, student satisfaction, and retention.

G.4. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements

Students will be required to take a total of 120 credits, with 23 credits of core courses, 22-23 credits of supporting core courses, 49 credits from the General Education and University Requirements (see G.5), and 26-27 credits from approved major-related electives.

G.4.1. Program Core Courses
The following are the core courses (23 credits of coursework) required for all students to take.

CSTL 101: Introduction to Coastal Science and Policy (3 credits)
An introductory course to the Coastal Science and Policy Program. Provides an overview of biological, physical, chemical, and geological processes in the coastal environment; policy, management, and human interactions with the coastal environment; and case studies discussing global coastal environments.

CSTL 201: Principles of Coastal Physical Science (4 credits: 3 hours of lecture, 1 hour of lab)
This course focuses on the physical, geological, and chemical characteristics of coastal environments. The course reviews topics from large scale (plate tectonics, circulation, and seawater composition), to medium scale (waves, tides, and chemical cycles), and small scale (turbulence, sediments, and organic matter). Lectures are accompanied by weekly labs to demonstrate lecture concepts.

CSTL 202: People and Coasts (3 credits: 3 hours of lecture)
This course serves as an introduction to how dynamic coastal environments affect people, societies, and economies. Globally, nearly 80% of the world's population live within 60 miles of the ocean. In the U.S., counties on the shoreline comprise less than 10% of total land area but 40% of the total population. In Maryland, over 70% of the population lives in a coastal county. From Global, to National, Regional and local, this course provides an introduction as to how humans and societies are affected, and affected by, the coastal environment. Using a case-study approach, this course examines key coastal environmental issues from a human and society perspective, including natural resource management, sustainability, loss of biodiversity, climate change, development. Through this interdisciplinary course, students will become aware of the challenges of balancing coastal environmental management to achieve competing human/societal and environmental objectives and understand the opportunities for applying course principles to address these challenges.

CSTL 401: Chesapeake Bay: Concerns & Solutions (3 credits: 3 hours of lecture)
This course will focus on the current concerns faced by the Chesapeake Bay region. Topics will include impacts to the Bay from agriculture, fisheries, chemical contaminants, the Conowingo Dam, deforestation/afforestation, groundwater drawdown and pollution, invasive species, nutrient pollution, oyster farming, and wetland restoration and degradation. Like with other 400 level courses, topics may vary based on current events.

<u>CSTL 402: The Urban Coastal Environments (3 credits: 3 hours of lecture)</u>
This course introduces students to the concerns posed by the increasing human population in coastal regions. Environmental challenges that result from high concentrations of people, industry, and infrastructure will be discussed, along with the sources, cycling, and fate of our limited freshwater resources. The focus of lectures, discussions, and observations will be on an urban setting in the Chesapeake Bay watershed. However, comparisons will be made across urban, rural, and suburban coastal settings, affording participants with a broad understanding of challenges posed by human development across the coastal watershed, and the magnification of those challenges in a densely populated environment. The last portion of the course considers individual and group actions that can be taken by students to help mitigate some of the most common environmental challenges found in an urban coastal environment. The course concludes with a community service project in Baltimore City.

<u>CSTL 403: National and International Coastal Systems (3 credits: 3 hours of lecture)</u>
This course will focus on current challenges faced by national and international coastal regions. Areas covered will include the Great Lakes, the Gulf and West Coasts of the USA, and selected international coastal regions. Topics may range from environmental concerns, regulations, politics, and management, among others. Like with other 400 level courses, topics may vary based on current events.

<u>CSTL 404: Capstone (4 credits; may be completed over two semesters)</u>
All students will complete a capstone project during their senior year. Capstone projects may fit into one of two categories: (1) Experiential Model - students complete a research internship with PEARL or SCMNS researchers or at an external laboratory; or (2) Independent Study Model - students work on individual topics of their choice, advised and supported by a faculty mentor at the PEARL.

G.4.2. Additional Major Requirements
The following supporting courses (22-23 credits) will also be required. The prerequisites for some of these courses will be fulfilled via the General Education Requirements (See G.5). Course descriptions are listed in Appendix G.4.2.

	Course	**Credit Hours**
BIOL 110	Introductory Biology II for Majors	4
BIOL 205	Ecology and Adaptations	4
CHEM 105L	Principles of General Chemistry I Lab	1
CHEM 106	Principles of General Chemistry II	3
CHEM 106L	Principles of General Chemistry II Lab	1
ECON 351	Environmental Economics & Policy	3
MATH 201 or MATH 241	Calculus I for Non-Science Majors or Calculus I	3 or 4

MATH 120	Introduction to Probability and Decision Making	3
	Total Credits	22 - 23

G.4.3. Program Approved Electives

The remaining 26-27 credits may be fulfilled by a combination of courses already offered at Morgan.

Three courses (Social Science Electives, 9 credits total) may be chosen from the following courses:
- ARCH 101: Concepts and Theories of the Built Environment I
- ARCH 303: Sustainability
- ARCH 331: Environmental Justice
- BUAD 200: Introduction to Business for Non-Business Majors
- CEGR 106: Introduction to Civil Engineering
- ECON 211: Principles of Economics I*
- ECON 212: Principles of Economics II*
- ECON 311: Principles and Methods of Probability and Statistics
- ECON 424: Economics and Law
- HLTH 300: Environmental Health Citizenship
- HLTH 301: Discovering Environmental Health
- POSC 101: Introduction to Political Science*
- POSC 201: American National Government
- POSC 305: The Politics of State and Local Governments
- POSC 317: Public Policy and Legislative Process
- SOCI 101: Introduction to Sociology
- SOCI 110: Introduction to Anthropology

ECON 211, ECON 212, and POSC 101 may not be used to fulfill both the General Education requirements and an elective requirement

Three courses (Science Electives, at least 9 credits total) may be chosen from the following courses:
- BIOL 203: Introduction to Environmental Science
- BIOL 204: Developmental Biology
- BIOL 303: Genetics
- CHEM 211: Environmental Chemistry
- EASC 205: Introductory Earth Science
- EASC 403: Environmental Science
- ENVS 390: Colloquium in Environmental Studies I
- GEOG 101: Introduction to Geography
- GEOG 105: Introduction to Weather and Climate
- PHYS 101: Introduction to Physics
- PHYS 105: Energy, Transportation and Pollution I

The remaining courses (Miscellaneous Electives, up to 9 credits, depending on courses chosen above) may be chosen from the following departments, pending approval from the Program Coordinator. Other courses that are not within these subjects may be considered by the Program Coordinator if they will either enhance the student's overall degree plan.

- Architecture (Undergraduate Design)
- Biology
- Business Administration
- Chemistry
- Civil Engineering
- Computer Science
- Construction Management
- Economics
- History, Geography, and Museum Studies
- Mathematics
- Multimedia Journalism
- Nutrition
- Physics
- Political Science
- Public Health
- Sociology and Anthropology
- Strategic Communication
- Transportation & Urban Infrastructure Studies
- World Languages and International Studies

G.4.4. Recommended Course Sequences

Students are recommended to follow the course sequence below. Variations from this sequence are to be discussed with the Program Coordinator.

Freshman Year						
First Semester				**Second Semester**		
Course		Credits		Course		Credits
BIOL 109	Intro Biology I for Majors	4		BIOL 110	Intro Biology II for Majors	4
CSTL 101	Intro to Coastal Science & Policy	3		MATH 201	Calculus I for Non-Science Majors	3
ENGL 101	Freshman Composition I	3		ENGL 102	Freshman Composition II	3
MATH 141	Precalculus	4		CT	Critical Thinking Gen Ed	3
ORNS 106	Freshman Orientation for SCMNS	1		PE or FIN 101	Phys Ed OR Financial Literacy	1
	Total	15			*Total*	14

Sophomore Year						
Third Semester				**Fourth Semester**		
Course		Credits		Course		Credits
CHEM 105	Principles of General Chemistry I	3		CHEM 106	Principles of General Chemistry II	3
CHEM 105L	Principles of Gen. Chemistry I Lab	1		CHEM 106L	Principles of Gen. Chemistry II Lab	1
SB	Social & Behavioral Science Gen Ed	3		MATH 120	Intro to Probability & Decision Making	3
HH	Health & Healthful Living Gen Ed	3		HIST 350	Intro to the African Diaspora	3
SCI-ELEC	Science Elective	4		IM	Info, Tech, & Media Literacy Gen Ed	3
				AH	Arts & Humanities Gen Ed	3
	Total	14			*Total*	16

Junior Year						
Fifth Semester				**Sixth Semester**		
Course		Credits		Course		Credits
CSTL 201	Prin of Coastal Systems I: Phys Sci	4		BIOL 205	Ecology and Adaptations	4
SB	Social & Behavioral Science Gen Ed	3		CSTL 202	People and Coasts	3
AH	Arts & Humanities Gen Ed	3		SCI-ELEC	Elective	4
SOC-ELEC	Social Science Elective	3		SOC-ELEC	Social Science Elective	3
SCI-ELEC	Science Elective	3		MISC-Elec	Miscellaneous Elective	3
	Total	16			*Total*	17

Senior Year						
Seventh Semester				**Eighth Semester**		
Course		Credits		Course		Credits
ECON 351	Environ Econ & Policy	3		CSTL 403	Natl & Internatl Coastal Systems	3
CSTL 401	Ches. Bay: Concerns & Solutions	3		SOC-ELEC	Social Science Elective	3
CSTL 402	The Urban Coastal Environments	3		MISC-ELEC	Miscellaneous Elective	3
CS	Complementary Studies	3		CS	Complementary Studies	3
CSTL 404	Capstone	2		CSTL 404	Capstone	2
	Total	14			*Total*	14

G.5. Discuss how general education requirements will be met, if applicable.

Morgan State University has nine general education requirements for every undergraduate degree. There are additional University required courses as well. They include and will be met through the following courses: (Course descriptions listed in Appendix G.5).

Distribution Area	Required Credits	Recommended Course Options at Morgan
Information, Technological, & Media Literacy	3	*Choose One:* INSS 141: Introduction to Computer-Based Information Systems COSC 110: Introduction to Computing
English Composition	6	ENGL 101: Freshman Composition I ENGL 102: Freshman Composition II
Critical Thinking	3	*Choose One:* ARCH 105: Place Matters: Introduction to Contemporary City COMM 300: Communication and the Black Diaspora MHTC 340: Spirituality and the Helping Tradition PHIL 109: Introduction to Critical Thinking
Mathematics	3 (*req*); 4 (*actual*)	MATH 141: Precalculus
Arts & Humanities *Two courses from different disciplines*	6	ART 308: The Visual Arts COMM 203: Media Literacy in a Diverse World HUMA 201: Introduction to Humanities I HUMA 202: Introduction to Humanities II MISC 302: Introduction to Military Training Management (Military Science III) MUSC 391: The World of Music PHEC 300: Selected Roots of Afro American Dance PHIL 102: Introduction to Philosophy PHIL 220: Ethics and Values PHIL 223: Introduction to the Philosophy of Politics RELG 305: Introduction to World Religions THEA 210: History of the Theatre I THEA 312: Black Drama Foreign Language 102 or higher
Biological & Physical Sciences	7 (*required*)	BIOL 109: Introductory Biology I for Majors CHEM 105: Principles of General Chemistry I
Social & Behavioral Sciences *Two courses from different disciplines*	6	ECON 211: Principles of Economics I ECON 212: Principles of Economics II HIST 101: World History I HIST 102: World History II HIST 105: History of the United States I HIST 106: History of the United States II HIST 120: Topics in American History HIST 130: Topics in World History MHTC 103: Introduction to Group Dynamics MISC 301: Introduction to Team and Small Unit Operations (Military Science III) POSC 201: American National Government POSC 206: Black Politics in America PSYC 101: General Psychology SOCI 101: Introduction to Sociology SOCI 110: Introduction to Anthropology SOSC 101: Introduction to the Social Sciences
Health & Healthful Living	3	*Choose one:* HLTH 103: Social Determinants of Health HLTH 203: Personal and Community Health NUSC 160: Introduction to Nutrition
Contemporary and Global Issues, Ideas and Values	3	HIST 350: Introduction to the African Diaspora
University Requirements	2	Phys. Activity or FIN 101 (1 credit) Orientation (1 credit)

SCMNS Requirement: Contemporary Studies	6	All students earning degrees in programs in the School of Computer, Mathematical and Natural Sciences must complete a six-credit Complementary Studies of two (2) three-credit courses or any (credit) combination thereof totaling six credits, designed to broaden their college exposure and education. Courses used to meet the Complementary Studies requirement may not be used simultaneously to satisfy other requirements. In order to qualify for graduation, students must choose any two courses that are different from those already selected to fulfill their General Education Requirements and that are not included within their Major and University Requirements.

G.6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

There will be no specialized accreditation or graduate certification components associated with the Program.

G.7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

No official contracts apply. However, articulation agreements with regional community colleges will be sought.

G.8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.

MORGAN provides students with all necessary information, services, and help.

Academic Unit	Document
University	University Catalog
School/College	School/College Catalog
Program	Program Handbook, Program Brochure Course Description Sheets, Suggested Curriculum Sequence Sheets
Course	Course Syllabus and Course Outline.
Help Office	All kinds of help
Academic Advisor	All kinds of academic advising

Documents in digital form are posted on Morgan web pages and in paper form can be found in the University Library, School/College and Department Offices.

G.9. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.

Morgan has Offices/Services for Advertising, Recruiting, Admission, etc. They have all necessary materials which clearly and accurately represent the Programs. These materials are written by the faculty members of the Program and distributed to the "customers" – prospective students – by the Offices.

H. *Adequacy of Articulation*

H.1. If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.

Articulation agreements with regional community colleges are being sought. The following programs are potential partner programs. Draft articulation agreements for each program are provided in Appendix H.

- College of Southern Maryland - A.S. Environmental Studies; A.S. Mathematics & Sciences - Biology; A.S. Mathematics & Sciences - General
- Anne Arundel Community College - A.S. Environmental Science, Arts and Sciences Transfer
- Prince George's Community College - A.A. General Studies with Area of Concentration in Biology; A.A. General Studies with Area of Concentration in Chemistry; A.A. General Studies with Area of Concentration in Sciences, Engineering, and Mathematics
- Howard Community College - A.A. Environmental Science; A.A. Life Science; A.A. General Studies with Area of Concentration in Science, Technology, Engineering, and Mathematics

I. *Adequacy of Faculty Resources*

I.1. Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct) and the course(s) each faculty member will teach in the proposed program.

The Patuxent Environmental and Aquatic Research Laboratory has distinguished staff and faculty with background and expertise in Coastal Science and Policy. Selected faculty members from the Departments of Biology, Chemistry, and Mathematics will also participate in teaching and research.

First Name	Last Name	Terminal Degree and Field	Academic Title/Rank	Status	Courses
Scott	Knoche	Ph.D., Environmental/ Natural Resource Economics	Director	Full-Time	CSTL 203, ECON 351, CSTL 403
Chunlei	Fan	Ph.D., Environmental Science	Professor	Full-Time	BIOL 205, CSTL 401
Thomas	Ihde	Ph.D., Fisheries Science	Research Assistant Professor	Full-Time	CSTL 402
Amanda	Knobloch	Ph.D., Chemical Oceanography	Education Coordinator	Full-Time	CSTL 101, CSTL 201, CSTL 404**
Ming	Liu	Ph.D., Fishery Resources	Oyster Genomics Researcher	Full-Time	CSTL 404**
Simon	Nyaga	Ph.D. Biology	Associate Professor	Full-time	BIOL 109/110
Yuejin	Li	Ph.D., Biology	Assistant Professor	Full-time	BIOL 109/110
Jiangnan	Peng	Ph.D. Chemistry	Assistant Professor	Full-Time	CHEM 105/106 & Labs
Pumtiwitt	McCarthy	Ph.D. Biochemistry	Associate Professor	Full-Tile	CHEM 105/106 & Labs
Guoping	Zhang	Ph.D. Mathematics	Associate Professor	Full-Time	MATH 241
Syafrida	Syafrida	Ph.D. Mathematics	Lecturer	Full-Time	MATH 120/241
Kaitlynn	Ritchie	M.S., Water Science	Research Associate	Full-Time	*
Brittany	Wolfe	MS., Marine Biology	Shellfish Hatchery Manager, Extension Specialist	Full-Time	*

*Kaitlynn Ritchie and Brittany Wolfe will assist the primary instructors where appropriate
**CSTL 404 will be co-taught by Drs. Amanda Knobloch and Ming Liu

I.2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:

a. Pedagogy that meets the needs of the students
At the beginning of each semester, Morgan has a 3-day Faculty Institute, School/College Meeting, and Department Meeting. The keynote presentation, guest presentations are always pedagogy and learning management system oriented. During the academic year, the School of Computer, Mathematical, and Natural Sciences organize faculty development workshops, seminars, and lectures on all kinds of pedagogical topics and issues.

The Morgan Foundation financially supports faculty members' attendance with presentations at local and/or national "professional/technical" conferences.

 b. The learning management system

 Morgan provides LSM for both on-site and online classes. During the academic year Academic Computing organizes workshops, seminars, lectures on new technical, computing, etc. opportunities.

 c. Evidenced-based best practices for distance education, if distance education is offered.
During the academic year the Morgan Online Programs Office organizes workshops, seminars, lectures, demonstration on distance education opportunities.

J. Adequacy of Library Resources

J.1. Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program.
J.1.1. Morgan Library[38]

 Students beginning their studies at Morgan will have access to the Morgan State University Earl S. Richardson Library (Morgan Library). The Morgan Library offers a range of resources and services to the Morgan community. Most library resources (USMAI Catalog, WorldCat MORGAN, Libguides, Collections, etc.) and services can be accessed remotely.

J.1.2. Required Library Resources

 The BS in Coastal Science and Policy requires modest additional library resources, including books and journals on coastal science and policy topics to update the existing PEARL on-campus library and to add to the Morgan Library. Books and journals necessary would focus on topics such as coastal biology, coastal chemistry, coastal geology, coastal physics, aquaculture, fisheries, policy, economics

J.1.3. Morgan Bookstore[39]

Morgan State University's bookstore will sell any and all required Coastal Science and Policy textbooks and educational materials.

K. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment

K.1. Provide an assurance that physical facilities, infrastructure, and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for studies in the technologies and sciences.

K.1.1. Physical Facilities
The BS in Coastal Science and Policy will be offered by the Patuxent Environmental and Aquatic Research Laboratory (PEARL) and coordinated by the PEARL Director and Program Coordinator. It will be administered by the PEARL in the PEARL Facilities in St. Leonard, Maryland.

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[38] https://library.morgan.edu/home
[39] https://morgan.bncollege.com/shop/morgan/home

Students will also have access to other facilities on campus as needed. The BS in Coastal Science and Policy Program does not require additional physical facilities.

K.1.2. Infrastructure Equipment
The BS in Coastal Science and Policy Program does not need additional infrastructure equipment.

K.1.3. Instruction Equipment
Morgan State University and the PEARL have comparable research facilities to the other higher education institutions in the State of Maryland. Both Morgan and the PEARL have research and teaching labs suitable for this Program.

K.2. Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:
     a. An institutional electronic mailing system, and
The Morgan State University email system is provided by Google's Gmail.

     b. A learning management system that provides the necessary technological support for distance education
 The Morgan State University online learning platform is Canvas.

The BS in Coastal Science and Policy will use both the traditional classroom or face-to-face instruction delivery model and a distance-learning environment to allow access to a wider population of students.

L. Adequacy of Financial Resources with Documentation

L.1. Complete Table 1: Resources and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each resource category. If resources have been or will be reallocated to support the proposed program, briefly discuss the sources of those funds.

Table 1: Program Resources					
Resource Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Reallocated Funds	0	0	0	0	0
2. Tuition/Fee Revenue (c + g below)	160,160	320,320	480,480	640,640	800,800
a. Number of F/T Students	20	40	60	80	100
b. Annual Tuition/Fee Rate	8,008	8,008	8,008	8,008	8,008
c. Total F/T Revenue (a x b)	160,160	320,320	480,480	640,640	800,800
d. Number of P/T Students	0*	0*	0*	0*	0*
e. Credit Hour Rate	331.50	331.50	331.50	331.50	331.50
f. Annual Credit Hour Rate	30	30	30	30	30
g. Total P/T Revenue (d x e x f)	0	0	0	0	0
3. Grants, Contracts, & Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
TOTAL (Add 1 – 4)	$160,160	$320,320	$480,480	$640,640	$800,800

L.1.2. Resource Allocation Justification

1. Reallocated funds - Program does not have reallocated funds

2. Tuition/Fee Revenue

Number of Students	Year 1	Year 2	Year 3	Year 4	Year 5
New Full Time	20	25	25	25	25
Part Time	0	0	0	0	0
Total (~75% retention rate)	20	40	60	80	100

	Tuition	Fees	Total
Full-Time (Per-Semester)			
Resident*	2,738.50	1,265.50	4,004.00
Non-Resident	7,974.50	1,265.50	9,240.40
Part-Time			
Resident	250.00	81.50	331.50
Non-Resident	629.00	81.50	710.50

*Table 1 assumes students will be residents of the state of Maryland.

3. Grants, Contracts, and Other External Sources

The Program does not have any current grants or contracts. However, the Program fundraising will be active, and faculty members will be diligent in applying for state, federal, and local funds to supplement the Program.

4. Other Sources

The Program does not have other sources of funding.

L.2. Complete Table 2: Program Expenditures and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also provide a narrative rationale for each expenditure category.

This Program will utilize existing staff, faculty, and facility resources and will incur minimal additional costs to the university.

Table 2: PROGRAM EXPENDITURES					
Expenditure Categories	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
1. Faculty (b + c below)	$90,000	$90,000	$100,000	$100,000	$200,000
a. Number of FTE	1	1	1	1	2
b. Total Salary	$63,000	$63,000	$70,000	$70,000	$140,000
c. Total Benefits	$27,000	$27,000	$30,000	$30,000	$60,000
2. Admin. Staff (b + c below)	$0	$0	$0	$0	$0
a. Number of FTE	-	-	-	-	-
b. Total Salary	-	-	-	-	-
c. Total Benefits	-	-	-	-	-
3. Support Staff (b + c below)	$0	$0	$0	$0	$0
a. Number of FTE	-	-	-	-	-
b. Total Salary	-	-	-	-	-
c. Total Benefits	-	-	-	-	-
4. Technical Support and Equipment	$10,000	$10,000	$25,000	$50,000	-
5. Library	-	-	-	-	-
6. New or Renovated Space	-	-	$25,000	$50,000	-
7. Other Expenses	-	-	-	-	-
TOTAL (Add 1 – 7)	$100,000	$100,000	$150,000	$150,000	$200,000

L.2.1. Expenditures Justification

1. Faculty

In Year 1, one full-time PhD-level faculty member will be hired to develop coursework and act as Co-Program Coordinator with Dr. Knobloch. As the program grows, this faculty member will also assist with teaching and developing new courses. The new faculty member's salary will begin at $63,000 (with 42% fringe benefits - $27,000) and increase in Years 3-5 to $70,000 (with 42% fringe benefits - $30,000).

In Year 5, an additional PhD-level faculty member will be hired to expand the degree program by teaching and developing additional coursework. Their salary will be $70,000 (with 42% fringe benefits - $30,000).

2. Admin. Staff, 3. Support Staff

No expenses related to Administrative or Support Staff are expected at this time.

4. Technical Support and Equipment

To accommodate hybrid and remote learning options, funds are requested in Years 1-4 to augment and increase current distance learning capabilities at the Morgan Baltimore campus and at the PEARL facility. Expected costs include upgrades to audio and visual equipment, upgraded internet capabilities, and computer access for students who do not have regular access to computers for attending hybrid/remote coursework.

5. Library

The Program will primarily use resources already available to Morgan students, such as access to online journals and articles provided through the Earl S. Richardson Library.

6. New or Renovated Space

As the program grows, $25,000 will be allocated in Year 3 and $50,000 in Year 4 to improving and expanding spaces to support additional students.

7. Other Expenses

No other expenses to the University are expected at this time.

M. Adequacy of Provisions for Evaluation of Program

Morgan has, and therefore the BS in Coastal Science and Policy will have, evaluation procedures for administrators (PEARL Director and Program Coordinator), faculty members, students, Programs, and courses.

Students' performance in courses will be evaluated on the basis of graded assignments, tests, quizzes, attendance, etc. Each semester, students will submit online evaluations of their courses and instructors. Each year, the PEARL Director and the Program Coordinator will evaluate faculty and provide feedback for improvement using faculty annual reports and the SCMNS Faculty Evaluation Instrument. Each year, the PEARL Director will evaluate the Program Coordinator, the SCMNS Dean will evaluate the PEARL Director, and the Provost will evaluate the Dean.

Evaluations at each stage are based on specific and well-defined procedures and criteria that are made known in advance, including syllabi, questionnaires, reports, job descriptions, and evaluation forms. Collecting, managing, and reporting data are time-consuming and very important processes.

The main goals of the evaluations are to 1) build a stronger school, programs, and courses; 2) track and improve the performance administrators, faculty members, and students; 3) increase the rigor of teaching and learning; 4) promote more effective services.

In case of an overall unsatisfactory evaluation, a Performance Improvement Plan must be developed for the next semester or academic year and be approved by the PEARL Director and Program Coordinator.

M.1. Discuss procedures for evaluating courses, faculty and student learning outcomes.

At the end of each semester, the Program Coordinator will evaluate each course, course instructor, and student performance; meet with course instructors to go over evaluation results and to make suggestions for goals and objectives for the new semester. At the end of each academic year the Program Coordinator will evaluate the performance of the Program's faculty members; evaluate the Program's performance, meet with the faculty members of the Program to go over the evaluation results and to make suggestions for goals and objectives for the new academic year.

M.1.1. Criteria for Course Evaluation
- Course Organization
  - Are the following policies clearly stated in the syllabus?
    - Course objectives
    - Requirements
    - Grading
    - Attendance
  - Is the content taught suited to the stated course objectives?
  - Does the instructor use technology appropriately?
  - Is class time used productively?
  - Does the course use active learning pedagogy?
  - Does the course cater to a variety of learning styles?
- Assignments
  - Are the following appropriate for this course?
    - Homework
    - Paper assignments
    - Projects
    - Tests
    - Textbooks and other assigned reading
  - Do assignments effectively promote positive student learning outcomes?
- Grading

- o   Does the instructor provide useful feedback on assignments?
- o   Do examinations reflect important aspects of the course?
- o   Is the grading system fair and clearly explained at the beginning of the semester?
- o   Are assignments graded properly and promptly?
- ● Communication
  - o   Does the instructor explain complex ideas well?
  - o   Does the instructor show and inspire enthusiasm for the subject?
  - o   Does the instructor answer students' questions clearly?
  - o   Does the instructor use examples and illustrations to clarify material?
- ● Interaction with students
  - o   Does the instructor treat all students respectfully, fairly and without bias?
  - o   Does the instructor respond to student communications promptly?
  - o   Does the instructor encourage student participation in the classroom?
  - o   Is the instructor open to different points of view?
  - o   Is the instructor available to provide individual help to students?
  - o   Does the instructor seem genuinely concerned with students' progress in the course?

M.1.2. Criteria for Program Evaluation

To ensure an effective, high-quality program that produces informed and motivated graduates, the program and faculty will be evaluated based on the criteria suggested in the National Research Council's *Evaluating and Improving Undergraduate Teaching in Science, Technology, Engineering, and Mathematics.*[40] The following criteria are from Chapters 6 and 7 of that report.

- ● Evaluating a Program's Ability to Enhance Teaching and Learning in Classrooms and Other Venues
  - o   Engaging student interest in the Program's curricular offerings:
    - ■ Does the Program encourage faculty members to discuss how to employ the most effective teaching techniques and educational experiences for students with various educational backgrounds and aspirations?
    - ■ Are the Program's offerings designed to engage and excite students about the discipline specifically and about STEM generally?

  - o   Applying research on human cognition and learning:
    - ■ Does the Program encourage faculty to base instructional techniques on modern research on human cognition and learning?
    - ■ Does the Program sponsor seminars, workshops, or other activities to help faculty members become familiar with this research and its implications for improving teaching and learning?

  - o   Employing effective pedagogy:
    - ■ Does the Program support faculty who become engaged in active scholarship on teaching and learning?

  - o   Assessing student learning:
    - ■ Does the Program encourage faculty to discuss ways of optimizing the assessment of student learning and provide sufficient time and resources to support such efforts?

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[40] National Research Council 2003. *Evaluating and Improving Undergraduate Teaching in Science, Technology, Engineering, and Mathematics.* Washington, D.C.: The National Academies Press.

- Are student learning outcomes considered a primary criterion when assessing the success of curriculums and programs?

  ○ Incorporating advances in the discipline and related subject areas:
  - Do the Program's courses incorporate cutting edge topics and skills of the discipline and present them to students in ways that are pedagogically appropriate?
  - Does the Program encourage colleagues to focus some of the coursework on real-world applications and on connections between STEM and other disciplines?
  - Does the Program offer encouragement to maintain and integrate into undergraduate courses cutting-edge tools and technologies so that students can better appreciate and experience how advances in the discipline are achieved?
  - Is the Program finding ways to extend the teaching and learning of STEM beyond traditional classroom and laboratory settings?

  ○ Providing academic advising and career planning:
  - Does the Program view academic and career advising as central to its mission?
  - Does the Program encourage faculty members to become more effective academic and career advisors and provide the necessary resources and time for the purpose?
  - Does the Program encourage undergraduate students to undertake real-world work and academic experiences through summer and academic-year internships?
  - Does the Program bring people to campus for presentations to students about career options and opportunities?

- Evaluating Program Efforts to Improve Teaching Laboratories and Other Undergraduate Research Experiences
  ○ Emphasizing the role and importance of teaching laboratories:
  - Does the program encourage faculty to develop inquiry-based laboratory exercises that encourage students to develop their own hypotheses, design original experiments, and analyze data?
  - Have faculty members discussed criteria for assessing students' work in laboratories?
  ○ Encouraging students to engage in independent research?
  - Does the Program encourage faculty to oversee and support students who wish to engage in independent, original research on campus?
  - Has the department discussed what the role of undergraduate research should be in relation to advancing its mission of teaching, research, and service?

M.1.3. Criteria for Faculty Evaluation
A faculty member must satisfy the following criteria:
- Knowledge of and Enthusiasm for Subject Matter
  o Understand and can help students learn and understand the general principles of their discipline
  o Provide students with an overview of the whole domain of the discipline
  o Possess sufficient knowledge and understanding of their own and related sub-disciplines that they can answer most students' questions or know how to help students find appropriate information

- o Keep their knowledge about a field of study current through an active research program or through scholarly reading and other types of professional engagement with others in their immediate and related disciplines
- o Are genuinely interested in- and passionate about- the course materials they are teaching. Practicing scientists and teachers understand and appreciate the infectious enthusiasm that accompanies original discovery, application of theory, and design of new products and processes.

- Skill, Experience, and Creativity with a Range of Appropriate Pedagogies and Technologies
  - o Have knowledge of and select and use a range of strategies that offer opportunities for students with different learning styles to achieve
  - o Are organized and clearly communicate to students their expectations for learning and academic achievement
  - o Focus on whether students are learning what is being taught and view the learning process as a joint venture between themselves and their students
  - o Give students adequate opportunity to build confidence by practicing skills
  - o Ask interesting and challenging questions
  - o Encourage discussion and promote active learning strategies
  - o Persistently monitor students' progress toward achieving learning goals through discussions in class, out-of-class assignments, and other forms of assessment
  - o Have the ability to recognize those students who are not achieving to their fullest potential and then employ the professional knowledge and skill necessary to assist them in overcoming academic difficulties

- Understanding of and Skill in Using Appropriate Testing Practices
  - o Assess learning in ways that are consistent with the learning objectives of a course and integrate stated course objectives with long-range curricular goals
  - o Know whether students are truly learning what is being taught
  - o Determine accurately and fairly students' knowledge of the subject matter and the extent to which learning has occurred throughout the term (not just at the end of the course)

- Professional Interactions with Students Within and Beyond the Classroom
  - o Meet with all classes and assigned teaching laboratories, post and keep regular office hours, and hold exams as scheduled
  - o Demonstrate respect for students as individuals; this includes respecting the confidentiality of information gleaned from advising or student conferences
  - o Encourage the free pursuit of learning and protect students' academic freedom
  - o Address sensitive subjects or issues in ways that help students deal with them maturely
  - o Contribute to the ongoing intellectual development of individual students and foster confidence in their ability to learn and discover on their own
  - o Act as an advisor to students who are having problems with course material and know how to work with such students in other venues besides the classroom to help them achieve. When a student clearly is not prepared to undertake the challenges of a particular course, the effective instructor may counsel that student out of the course or suggest alternative, individualized approaches for the student to learn the subject matter that is prerequisite for the course
  - o Uphold and model for students the best scholarly and ethical standards

- Involvement with and Contributions to One's Profession in Enhancing Teaching and Learning

        o   Work with colleagues both on and beyond campus, collaborating with departmental colleagues, faculty in other departments
        o   Work to better integrate the materials they present in their courses with what is being taught in other courses

Failure to meet any one of these criteria will automatically result in an unsatisfactory rating for Teaching.

M.1.4. Criteria for Student Learning Outcomes Evaluation
The course instructor will tailor assignments to measure students' aptitude against the objectives of the course and the desired student learning outcomes.

Upon completing the BS in Coastal Science and Policy program, students will be able to:
- Demonstrate an understanding of core knowledge in coastal science and policy
- Apply critical thinking and analytical skills to solve scientific datasets
- Demonstrate written, visual, and oral presentation skills to communicate scientific knowledge
- Write clearly and persuasively to communicate scientific ideas clearly
- Acquire and synthesize scientific information from a variety of sources
- Apply techniques and use instrumentation to solve coastal science problems
- Demonstrate an understanding of the "tools" available to address policy problems
- Identify the factors that influence the direction of government action
- Describe of the effects of government action
- Recognize the various constituencies that influence how coastal policies are made and the underpinnings of real life policy choices.

M.2. Explain how the institution will evaluate the proposed program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

The Coastal Science and Policy Program Coordinator will submit annual reports to the PEARL Director and to the SCMNS Dean detailing students' performance in Program courses, student enrollment, retention and graduation rates, placement in internships and employment, student and faculty satisfaction, and the Program's cost-effectiveness.

N. Consistency with the State's Minority Student Achievement Goals

N.1. Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.

The BS in Coastal Science and Policy Program is designed to recruit, retain, graduate and place students, especially minority students, in meaningful employment in both government and private sectors. These goals are consistent with Morgan's goals and initiatives to promote minority student access and success, and to recruit diverse, high-quality faculty.

O. Relationship to Low Productivity Programs Identified by the Commission

O.1. If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program.

There is no relationship with low-productivity programs identified by the Commission.

P. *Adequacy of Distance Education Programs*

P.1. Provide affirmation and any appropriate evidence that the institution is eligible to provide Distance Education.

Due to the 2020 COVID-19 pandemic and institutional mandatory implementation of distance learning, Morgan is fully equipped to provide online courses through a "Remote Hybrid Design." This system involves an online based course on Canvas (Morgan's Learning Management System) with pre-recorded lectures, reading materials, self-assessment tools, assignments, and graded quizzes. In addition, each course has several areas for discussion (either accompanying lectures or course modules) and mandatory weekly live meetings. Discussions will take place in message boards designed for students to ask questions to be answered by the instructor(s) and/or by other students. Allowing other students to answer questions will facilitate further discussion and demonstrate their understanding of the material. The mandatory weekly live sessions will consist of a videoconference with the instructor(s) and the students where the instructor(s) can address questions from the discussion boards, discuss course materials (such as articles or assignments), and answer questions in real-time. Of course, the instructor(s) will be available via email or through the Canvas inbox.

The Canvas page for each course will be organized into modules, organized as follows:
- Introductory module
  - This module acts as a syllabus and introduces students to the course, course requirements, computing requirements, and addresses other common questions
- Multiple course section modules that include:
  - Pre-recorded lectures
  - Discussion boards
  - Course materials
    - Reading material or useful websites
  - Assignments
  - Self-assessment quizzes
    - Not-graded quizzes designed to check student's knowledge and provide feedback to learn from errors
  - "Muddiest Points" Quizzes
    - An open-ended question where students can list what they've learned from each module, what were the most unclear areas, and what questions they have about the module

Modules will be posted in a timely manner as to allow students ample time to review materials before assignment due dates or exams. Exams will be administered either in "take-home" format or by using Respondus®, which includes access to the LockDown Browser® that allows students to take exams but

disables their ability to access any other program or website while taking the exam. If the instructor deems it necessary, the use of the Respondus Monitor® will be used to monitor students during exams via webcam to prevent other forms of cheating (i.e., looking at written materials, using a secondary computer, etc.). The use of Respondus® programs allows students to take exams whenever is most convenient for them (prior to the assigned due date).

This Remote Hybrid Design will be designed to benefit both students and instructors. Students will have a flexible schedule, allowing traditional and non-traditional style students to take these courses. In addition, as courses will be taught by PEARL faculty in a facility approximately 80 miles from Morgan's Baltimore campus, students who would not be able to travel to the PEARL will still benefit from courses taught there. PEARL faculty will also benefit from the flexible schedule. Instructors will be able to record lectures, review assignments and quizzes, address questions in discussion forums, and upload additional content when it is most convenient for them (prior to the agreed upon posting date).

P.2. Provide assurance and any appropriate evidence that the institution complies with the C-RAC guidelines, particularly as it relates to the proposed program.

Morgan compiles with the Council of Regional Accrediting Commissions (C-RAC) guidelines - Interregional Guidelines for the Evaluation of Distance Education.

In particular, this Program relates to these guidelines and Morgan's goals and visions in the following ways:

1. Online learning is appropriate to the institution's mission and purposes.
In "Growing the Future, Leading the World: The Strategic Plan for Morgan State University, 2011-2021," President Wilson outlines strategic initiatives for each goal presented. Under "Goal 1: Enhancing Student Success," Morgan will enhance student success and preparation by "Increasing Morgan's student enrollment by expanding the number of collaborative relationships with regional community colleges and higher education centers, *developing unique high demand online degree programs that are attractive to graduate and undergraduate students*, and leading the State of Maryland in graduating graduate and undergraduate students in high demand areas especially where they are underrepresented."
This program will further President Wilson's strategic initiative by creating new courses for students that are taught traditionally and via distance learning.

2. The institution's plans for developing, sustaining, and, if appropriate, expanding online learning offerings are integrated into its regular planning and evaluation process.
Morgan Online is a department within the Division of Academic Outreach and Engagement. The purpose of this Division is to engage with community residents and officials in the use of knowledge derived from faculty and student research, the sharing of mutually beneficial resources, and the appropriate and timely dispatch of University experts and professionals to collaborate in addressing community concerns. In this way, this Division uses Morgan Online to create, enhance, and promote online degree programs and courses.

3. Online learning is incorporated into the institution's systems of governance and academic oversight.

Morgan has established a strong online presence through the establishment of Morgan Online, an administrative unit for oversight of innovative online degree and certificate programs offered by the University since the implementation of the Strategic Plan. The intent in establishing these online programs is, in large measure, an effort by the University to fulfill its mission by offering highly flexible degree programs to meet the needs of working students and adult learners, including expanding evening and weekend course offerings, and increasing the number of options for online education.

4. Curricula for the institution's online learning offerings are coherent, cohesive, and comparable in academic rigor to programs offered in traditional instructional formats.
Online courses must pass through Morgan's department, school, and institution-wide curriculum review and be approved at each level before moving to the next. Processes are in place to ensure that online courses meet the same rigorous curriculum requirements and these courses and programs are reviewed and assessed for excellence and quality in student learning using the same systems that traditionally delivered courses follow.

5. The institution evaluates the effectiveness of its online learning offerings, including the extent to which the online learning goals are achieved, and uses the results of its evaluations to enhance the attainment of the goals.
All Morgan Online courses are developed using the Quality Matters standards for excellence in online course design and faculty must complete Morgan's online course design and delivery workshop prior to teaching online.

6. Faculty responsible for delivering the online learning curricula and evaluating the students' success in achieving the online learning goals are appropriately qualified and effectively supported.
All Morgan faculty must complete Morgan's online course design and delivery workshop prior to teaching online. To create an online course, faculty must perform the following steps:
- Schools and Departments determine what courses are to be developed online. Faculty must verify with their department that the course they are interested in developing online meets the objectives of the department.
- Morgan Online must have funding to support your course development.
- Faculty must obtain approval from their department or school chair to develop the course.
- Faculty must attend the developers courses. Online developers must attend the Quality Matters: Applying the QM Rubric, Quality Matters: Designing Your Online Course or Designing Your Blended Course, and MSU Teach Online.
- Faculty must obtain the CANVAS Template for their new online course. Morgan uses CANVAS as the learning management system for all online courses.
- Faculty must then design their online course using the CANVAS Template.

7. The institution provides effective student and academic services to support students enrolled in online learning offerings.
Morgan Online offers a full array of student support services equal to those available to on-campus students, including:
- Library and technology services
- Tutoring and academic resources

- Advising and career counseling
- Technical and help desk support

8. The institution provides sufficient resources to support and, if appropriate, expand its online learning offerings.

Morgan is expanding their online course offerings and employing state of the art technology to provide accessibility of online courses to all students. The University also facilitates course development training and encourages their faculty to create hybrid and online courses to best accommodate all students.

9. The institution assures the integrity of its online offerings.

Morgan uses Certified Quality Matters Peer Reviewers to perform internal Quality Matters reviews of its online courses. Eligibility requirements to become a Quality Matters Certified Peer Reviewer include:

- Successful completion of the Applying the Quality Matters Rubric Workshop and the Peer Reviewer Course.
- Current for-credit online teaching experience (within the last 18 months).
- Complete an Application and a Memo of Understanding.
- Be a current Higher Education Subscriber (Affiliated with an institutional subscriber or Individual Subscription).

Appendix 1 - Morgan State University

Morgan State University is Maryland's preeminent public urban research university providing instruction to a multiethnic, mutliracial student body. Morgan has been designated as a National Treasure by the National Trust for Historic Preservation. Founded in 1867 as a Biblical institute, the university is celebrating 152 years of academic excellence.

Morgan provides a comprehensive range of undergraduate degree programs to a diverse student body, encouraging success of underrepresented individuals through a supportive environment. Morgan boasts six core values: (1) Excellence in teaching, research, scholarship, creative endeavors, and student services; (2) Integrity through honest communication, ethical behavior, and accountability; (3) Respect of all persons at Morgan; (4) Diversity of people and ideas are welcomed at Morgan as essential to quality education; (5) Innovation by faculty, staff, and students in all forms of scholarship; and (6) Leadership facilitation among students, faculty, and staff.

Morgan maintains accreditation at the regional and state levels. Morgan has been regionally accredited by the Middle States Commission on Higher Education since January 1, 1925. Morgan is also authorized by the Maryland Higher Education Commission to confer degrees. Morgan confers more bachelor's degrees to African American students than any other college or university in Maryland. Morgan's status as a historically black college or university (HBCU) has encouraged diversity among its student population and provided a welcoming environment for students of all races, ethnicities, and backgrounds to study.

Morgan is comprised of nine schools and one college:
- School of Architecture and Planning
- Earl G. Graves School of Business and Management
- School of Community Health and Policy
- School of Computer, Mathematical, and Natural Sciences
- School of Education and Urban Studies
- Clarence M. Mitchell School of Engineering
- School of Global Communication
- School of Graduate Studies
- School of Social Work
- James H. Gilliam, Jr. College of Liberal Arts

Morgan also offers academic programs at both undergraduate and graduate levels:
- 48 bachelor's degree programs
- 10 post-baccalaureate certifications
- 34 master's degree programs
- 16 doctoral degree programs

Through its many departments and schools, Morgan has ample faculty resources to teach courses in Coastal Science and Policy. While the program will be housed within the College of Computer, Mathematical, and Natural Sciences, students will benefit from courses taught by faculty from other university divisions.

Morgan attracts students from each state and many foreign countries. About 35% of all students enrolled at Morgan are from outside the State of Maryland. It is one of the leading institutions nationally in the number of applications received from African-American high school graduates. The largest sources of its enrollments outside of Maryland are New York, New Jersey, and Pennsylvania.

Morgan alumni are prominent in STEM fields, with nearly 17% of Morgan Alumni employed in STEM fields versus 11% for all other Maryland schools. The University awards more bachelor's degrees to African-American students than any campus in Maryland. In many fields, but particularly in engineering and the sciences, Morgan accounts for large percentages of degrees received by African-Americans from Maryland institutions. An above-average percentage of Morgan graduates enter graduate and professional school. Historically, the University has ranked among the top public campuses nationally in the number of black graduates receiving doctorates.

Appendix 2 - Division of Coastal Science

Appendix 3 - The School of Computer, Mathematical, and Natural Sciences

The School of Computer, Mathematical, and Natural Sciences (SCMNS) is comprised of five departments, two professional programs, and one division:

- Department of Biology (which contains the Medical Technology Program)
- Department of Chemistry
- Department of Computer Science
- Department of Mathematics (which contains the Actuarial Science Program)
- Department of Physics and Engineering Physics
- Division of Coastal Science

SCMNS offers:
- 9 Bachelor's Degree Programs
- 2 Post-Baccalaureate Certificates (professional Programs)
- 4 Master's Degree Programs (M.S. with concentrations in Biology, Chemistry, and Physics and M.A. in Mathematics)
- 2 Doctoral Degree Programs

SCMNS also offers General Education Requirement courses in the sciences and mathematics to all Morgan students, regardless of their major field of study.

The faculty of the School of Computer, Mathematical, and Natural Sciences includes:

- 18 Full Professors
- 27 Associate Professors
- 8 Assistant Professors
- Lecturers or Instructors: 31

[3]Appendix A.1.2 - Patuxent Environmental and Aquatic Research Laboratory

The Patuxent Environmental and Aquatic Research Laboratory was founded in 1967 as the Academy of Natural Sciences' Estuarine Research Center with George Abbe as the first scientist on staff. In 2004, the laboratory was acquired by Morgan State University and was eventually renamed the Patuxent Environmental and Aquatic Research Laboratory, or the PEARL. Research at the PEARL is designed to increase the understanding of coastal ecosystems so that they may be properly managed and protected. Much of the research conducted at the PEARL focuses on the Chesapeake Bay and its tributaries, in particular the Patuxent River.

Current researchers at the PEARL have substantial expertise in shellfish aquaculture systems and oyster genomics; work is currently ongoing to identify genetic markers for disease resistance, low salinity tolerance, and shell aesthetics. PEARL researchers include fisheries biologists and biological oceanographers with expertise in ecosystem modelling and coastal ecosystem processes. The PEARL plays a key role in long-term monitoring of the Chesapeake Bay, such as blue crab surveys that began in 1967. PEARL research has been published in many high-impact journals, such as Frontiers in Marine Science, Fisheries Research, and Estuaries.

As a part of Morgan State University, the PEARL works to incorporate scientists of all ages in research. The laboratory has focused on both K-12 and undergraduate educational programs. Summer internships offered to undergraduates provide an opportunity for Morgan and CSM students to participate in locally relevant research. Students who intern at the PEARL in the summer often return to the PEARL to continue their research during subsequent semesters and summers.

Appendix G.4.2 - Course Descriptions of Additional Major Requirements

- BIOL 110: Introductory Biology II for Majors (4 Credits)
  - *Three lecture hours plus lab hours*. Topics covered include the biology of plants, animal development, animal form and function, and basic principles of heredity and evolution biology. It is designed for science majors.
- BIOL 205: Ecology and Adaptations (4 Credits)
  - *Three lecture hours plus three lab hours*. This course is an analysis of the environmental factors affecting the evolution, adaptation, distribution and functional processes of plant and animal communities. Considerable emphasis will be placed on the Ecosystem Concept.
- CHEM 105L: Principles of General Chemistry I Lab (1 Credit)
  - *Three lab hours*. This is the first semester of a two semester Principles of General Chemistry course. This course is for all majors which require 200 level chemistry courses or higher. The main goal of this course is to learn core topics of fundamental principles of chemistry. This includes modern atomic theory, the chemical bonding and the periodic law, stoichiometry, chemical reactions, theromchemistry, chemical reactions, molecular structure, kinetic molecular theory, and behavior of gases. Laboratory work introduces

students to basic chemical techniques and includes development of good and safe laboratory techniques.

- CHEM 106: Principles of General Chemistry II (3 Credits)
  - *Three lecture hours*. This course is the continuation of Principles of General Chemistry I, CHEM 105. This course is designed for all majors which require 200 level chemistry courses or higher. Topics discussed are properties of solutions, chemical kinetics and chemical equilibrium, acid-base equilibria, chemical thermodynamics, electrochemistry, coordination chemistry, and organic chemistry. Laboratory work for the first half of the semester is devoted to experiments that parallel the topics of this course list above. The remainder of the semester involves teaching students principles of semi-micro-qualitative analysis and to relate these experiences to "real world" occurrences.
- CHEM 106L: Principles of General Chemistry II Lab (1 Credit)
  - *Three lecture hours, three lab hours*. This course is the continuation of Principles of General Chemistry I, CHEM 105. This course is designed for all majors which require 200 level chemistry courses or higher. Topics discussed are properties of solutions, chemical kinetics and chemical equilibrium, acid-base equilibria, chemical thermodynamics, electrochemistry, coordination chemistry, and organic chemistry. Laboratory work for the first half of the semester is devoted to experiments that parallel the topics of this course list above. The remainder of the semester involves teaching students principles of semi-micro-qualitative analysis and to relate these experiences to "real world" occurrences.
- ECON 351: Environmental Economics & Policy (3 credits)
  - *Three lecture hours*. In this course, students will develop and apply an economics toolkit to analyze and address regional, national, and international environmental policy issues such as air and water pollution, climate change, toxic/hazardous substances, land use, and sustainable development. The course seeks to attract a wide range of students from the natural and social sciences. Previous economics coursework is helpful but not necessary, as the first part of the course focuses on a review of microeconomic theory and key economic principles that will be applied in this course.
- MATH 201: Calculus for Non-Science Majors (3 credits)
  - *Three hours per week*. This course discusses the basic concepts of calculus including functions, limits, continuity, and techniques of differentiation, with applications to the managerial, life, and social sciences. Topics include also an introduction to the techniques of integration with applications, and a basic introduction to multivariable calculus.
- MATH 241: Calculus I (4 Credits)
  - *Four hours per week*. Topics to be discussed include limits and continuity of real functions of one variable; differentiation and anti- differentiation of algebraic, trigonometric, exponential, and logarithmic functions; the chain rule, the Rolle's Theorem, and the Mean Value Theorem; applications of differentiation to various problems including optimization problems and curve sketching; and an introduction to definite and indefinite integrals.
  - Prerequisites: MATH 114 or MATH 141
- MATH 120: An Introduction to Probability and Decision Making (3 Credits)

○ *Three hours per week*. This is a first course in probability theory and should be of interest to students with little mathematical background. The course is intended to expose majors in psychology, sociology, biology, chemistry, physics, business administration, political science as well as mathematics to sound decision making in their respective fields.

Appendix G.5. Elective Course Descriptions (Divide by distribution area)

<u>Social Science Electives</u>

- ARCH 101: Concepts and Theories of the Built Environment I (3 credits)
  - *Three hours per week*. This course will introduce students to research methodologies, critical thinking and theoretical frameworks for understanding Architecture and the Built Environment. The concepts and theories addressing formal, cultural and technological issues of the built environment will provide the foundation for advanced study in the AREN program.
- ARCH 303: Sustainability (3 credits)
  - *Three hours per week*. This course explores "green technology" as well as the relationship between the built environment and such vital challenges as energy consumption, power supply, alternative energy sources, and building materials. Students further examine the social, ecological, and economic impact of built form on the environment by studying the relationship between urban development and environmental resources. Minimum Junior classification at Morgan. (Formerly ARCH 405).
- ARCH 331: Environmental Justice (3 credits)
  - *Three hours per week*. This course incorporates complex issues of environmental justice and social equity as important components to discussing community planning and public policy actions. This includes community-related environmental projects, e.g., public transportation services, housing supply, community development, public infrastructure, public education and health. The focus is to determine not only the social needs but also revenue and policy constraints so that environmental decisions become better informed, more accurate and less harmful.
- BUAD 200: Introduction to Business for Non-Business Majors (3 credits)
  - *Three hours per week*. This course is for non-business majors and will NOT count toward degree requirements in the School of Business and Management. The course is designed to assist students in exploring the field of business as a career. Topics such as Private Enterprise and its challenges, global business, forms of business ownership, financing, marketing, etc., are discussed in their most basic levels.
- CEGR 106: Introduction to Civil Engineering (1 credit)
  - *Two lecture hours*. This orientation course will introduce students to the concept of engineering design by exposure to several design problems from various areas of civil engineering including: structural, transportation, geotechnical and environmental engineering. (Formerly CEGR 105)
- ECON 211: Principles of Economics I (3 credits)

- ○ *Three hours per week*. The focus of this course is on macroeconomics. Topics covered include the determinants of nation- al income, employment, inflation, investment, the banking system, and government fiscal and monetary policies.
- ECON 212: Principles of Economics II (3 credits)
  - ○ *Three hours per week*. The focus of this course is microeconomics. Topics covered include the theory of the firm, consumer theory, alternative market structures, public goods and distribution theory.
- ECON 311: Principles and Methods of Probability and Statistics (3 credits)
  - ○ *Three hours per week*. This course covers topics such as data organization techniques, measures of central tendency and dispersion probability theory and distribution, sampling techniques and distribution. (Formerly Principles and Methods of Statistics I).
- ECON 424: Economics and Law (3 credits)
  - ○ *Three hours per week*. The course analyzes legal problems using microeconomic theory. Its main focus is to demonstrate that the basic economic concepts, such as maximization, equilibrium and efficiency, are fundamental to explaining and understanding the law.
- HLTH 300: Environmental Health Citizenship (3 credits)
  - ○ *Three lecture hours*. This course is designed to introduce and expand upon the concept of environmental health citizenship as a duty-based set of ideas and actions. The course will include the theory, principles, and practices of environmental citizenship centered around sustainability. There is emphasis placed on maintaining ecological and environmental health, creating economic welfare, and ensuring social justice as an aspect of overall public health.
- HLTH 301: Discovering Environmental Health (3 credits)
  - ○ *Three lecture hours*. This course focuses on how natural and built environments affect human health by examining the impact of physical, chemical and biological factors. Understanding disease prevention and management through assessing and controlling environmental factors that pose a threat to human health whether it involves air quality, natural disasters, radiation, water quality, UV exposure, indoor air pollutants, climate change, healthy communities and work environments, or the effects of toxic substances is included.
- POSC 101: Introduction to Political Science (3 credits)
  - ○ *Three hours per week*. This course is a general introduction to concepts, subject matter and general problems of modern governments. It provides an examination of the various approaches to the study of political science. This is a course for Political Science Majors but may be taken by non-majors.
- POSC 201: American National Government (3 credits)
  - ○ *Three hours per week*. This course is a survey of the national government, its organization and functions.
- POSC 305: The Politics of State and Local Governments (3 credits)
  - ○ *Three hours per week*. This course is a study of the governmental institutions, politics and the intergovernmental relationship of state, city, county, special districts, and other general governmental entities. This course will also focus on the politics and policies of urban metropolitan governments and their relationship to the state and federal government.

- POSC 317: Public Policy and Legislative Process (3 credits)
  - *Three hours per week*. The focus of this course is an analysis of policy making in legislative bodies. Factors which influence policy making, the effects, implications and impacts of policies will be explored. Conceptual scheme, strategies of policy formulation, deliberation and implementation will be analyzed.
- SOCI 101: Introduction to Sociology (3 credits)
  - *Three hours per week*. The objective of this course is to introduce the student to the systematic study of society. Emphasis is placed upon the major concepts of sociology and the scientific point of view in dealing with social phenomena. The course aims to enable the student to gain an understanding of questions which deal with humans in social relationships and to prepare the student for the study of societal issues and problems [Formerly SOCI 201].
- SOCI 110: Introduction to Anthropology (3 credits)
  - *Three hours per week*. This foundation course enhances self-knowledge, self-tolerance of diversity, and global understanding by providing insight into the human experience from the traditional four perspectives of the discipline (physical, archaeological, linguistic, and cultural). Ancient organisms and their behavior are examined, as is the study of the origin of the human species and its connection to primordial ancestors. [Formerly SOCI 210].

Science Electives

- BIOL 203: Introduction to Environmental Science (4 credits)
  - *Three lecture hours, three lab hours*. This course emphasizes the understanding of natural environmental systems and the physical and social causes of environmental problems with special emphasis on urban contexts, and strategies to mitigate these or manage these issues. The concepts of the relationships among the physical, chemical and biological components of the environment, and the impact upon them due to human activities will be explored in an interdisciplinary fashion from organism, ecosystem, and global perspectives. Laboratory exercises and required field trip will be integrated into the lecture material and experimental techniques.
- BIOL 204: Developmental Biology (4 credits)
  - *Three lecture hours, three lab hours*. This course serves to introduce the student to the principles, processes and problems of embryonic development in plants and animals. It also includes discussions and analyses of selected topics in developmental biology.
- BIOL 303: Genetics (4 credits)
  - *Three lecture hours, three lab hours*. This course will cover fundamental principles of each of the three branches of genetics: classical/transmission, molecular and population, and will supplement the theoretical concepts given in lectures with practical laboratory experiences and genetics problem sets.
- CHEM 211: Environmental Chemistry (3 credits)
  - *Three lecture hours*. An introduction to the Chemistry of the elements and inorganic compounds which are involved in natural biogeological cycles. Topics discussed are ozone depletion, greenhouse effect and global warming, acid rain, thermal pollution, water pollution, and introduction to geochemistry

- EASC 205: Introductory Earth Science (4 credits)
  - *Three lecture hours, three lab hours*. This laboratory-oriented course is structured to develop an understanding of the methods of scientific inquiry and critical thought with respect to investigations in astronomy, geology, meteorology, and oceanography. Special emphasis is made on the interrelationships between earth science, technology, and society, particularly with respect to the environment. This course is designed to meet certification requirements in earth science for elementary education majors.
- EASC 403: Environmental Science (3 credits)
  - *Two lecture hours, two lab hours*. This is a laboratory-oriented course involving the study of ecology, pollution and the environment. Specific topics to be discussed include an introduction to ecology, agricultural environments, pesticides, radioactive wastes, air pollution, water pollution, noise pollution, thermal pollution and solid wastes. Fieldwork will be an integral part of the course.
- ENVS 390: Colloquium in Environmental Studies I (3 credits)
  - *Three hours per week*. Advanced topics in Environmental Studies.
- GEOG 101: Introduction to Geography (3 credits)
  - *Three hours per week.* Introduction to the basic physical features, environments and locations of human activities of the various regions of the world. Attention will be given to historical events and current issues that affect these regions.
- GEOG 105: Introduction to Weather and Climate (3 credits)
  - *Three hours per week*. This course is designed to provide a fundamental understanding of the elements of weather and climate, their geographic patterns of variation, and environmental outcomes around the globe. In addition to nature's processes such as solar radiation, atmospheric moisture, air pressure and circulation, and storm formation, the course emphasizes the human dimensions of global climate change where vulnerability, adaptation, and resilience to weather and climate extremes are examined using geospatial technologies like geographic information systems.
- PHYS 101: Introduction to Physics (4 credits)
  - *Six hours per week*. This is a one-semester course exploring concepts in mechanics, heat, sound, optics electricity, magnetism and atomic and nuclear physics. Recommended for non-science majors to fulfill general education (BP) requirement.
- PHYS 105: Energy, Transportation and Pollution I (3 credits)
  - *Three hours per week*. This is the first of a two-semester sequence designed to discuss humans in relationship to their environment. The course presents physical principles and concepts to aid the student in understanding, assessing and appreciating the environment.

Appendix G.6. General Education Course Descriptions (Divided by distribution area)

Information, Technological, and Media Literacy (*One of the following is required*)
- INSS 141: Introduction to Computer-Based Information Systems (3 Credits)
  - *Three hours per week*. This course is an introduction to computers and information processing in business. Students will examine and understand the importance, function, and use of computers in business. In addition, the course provides hands-on experience

with commercially available microcomputer software packages for electronic spreadsheets, presentation, and database management.
- COSC 110: Introduction to Computing (3 Credits)
  - *Three lecture hours*. This course is designed to introduce students with no prior experience with computers and programming to the organization and characteristics of a digital computer and to the existence and uses of computers in everyday life experiences. If time permits, students may be given the opportunity to become familiar with computers via the use of electronic mail and the writing of short programs in a high level language.

English Composition (*Both courses are required*)
- ENGL 101: Freshman Composition I (3 Credits)
  - *Three or five lecture hours*. This course is designed to develop the student's command of language as an instrument of learning and expression. It focuses on essay writing. Classes meet from three to five times a week. Students whose test performance demonstrates exceptional ability are exempt from the requirement of ENGL 101 and are permitted to enter ENGL 102.
- ENGL 102: Freshman Composition II (3 Credits)
  - *Three or five lecture hours*. This course is designed to develop the student's command of language as an instrument of learning and expression, and it focuses on research and writing the documented essay. Classes meet from three to five times a week.

Critical Thinking (*One of the following is required*)
- ARCH 105: Place Matters: Introduction to Contemporary City (3 Credits)
  - *Three lecture hours*. This course introduces students to critical design thinking skills as applied to the contemporary city. Utilizing Baltimore as a laboratory, students will engage in research and critical thought on the physical, social, political, environmental and economic forces that shape and reshape cities. Students will learn tools of urban analysis and develop skills to participate as engaged citizens in their current and future communities preparing them for life in our increasingly urbanizing world.
- COMM 300: Communication and the Black Diaspora (3 Credits)
  - *Three hours per week*. The course surveys the history and development of communication in the Black Diaspora. Attention is given to those communication elements of the Black Diaspora that are unique to the United States and those that are shared throughout the world as well as those aspects that distinguish particular African global cultures.
- MHTC 340: Spirituality and the Helping Tradition
  - This course is offered to aid in the development of culturally competent practitioners who will be critically reflective of and respectfully responsive to the diversity of spiritual values, ethics, and principles that contribute to the world views of the people with whom they work. It will explore the multiple definitions of spirituality and its meaning in and between various cultural and marginalized groups. The course will explore the role of spirituality in supporting or impeding individuals, families, and group strengths as well as its interaction with structural systems. The course will provide various case examinations along with the opportunity to explore skill-based approaches for assessment and

intervention. Special emphasis will be given to people of color within urban environments.

- PHIL 109: Introduction to Critical Thinking (3 Credits)
  - *Three hours per week*. This course is a study of the fundamental principles of logic, including reflective thinking. Emphasis will be given to the study of the traditional or classical forms of deductive and inductive inference and the processes of communicating, symbolizing and defining. Constant practice in detecting fallacious reasoning will be provided.

Mathematics and Quantitative Reasoning (*3 Credits required*)

- MATH 141: Precalculus (4 Credits)
  - *Four hours per week*. A course designed to cover the following topics: review of algebra, trigonometry, and analytic geometry; equations and inequalities; sequences and series; functions and relations including algebraic, logarithmic, exponential, and trigonometric functions; analytic geometry including conic sections and parametric equations.

Arts and Humanities (*Two courses from different disciplines required*)

- ART 308: The Visual Arts (3 Credits)
  - *Three hours per week*. The development of the student's capacity to respond to the visual arts with greater insight and/or intensity of emotion is a primary goal of this course. Students will analyze artists, the creative process and works of art as these components of art relate to the culture and the student's experience.
- COMM 203: Media Literacy in a Diverse World (3 Credits)
  - *Three hours per week*. This course examines mass media and the social, economic and psychological roles and impacts that they have in different societies. Emphasis will be placed on how media shape perceptions about race, religion, gender, ability, sexual orientation, etc. Students will learn how media shapes our perceptions about other nations and shapes other nations' perceptions about us. Students will also learn the roles media play in helping to shape and reflect culture and the important roles that media consumers play in the mass communication process.
- HUMA 201: Introduction to Humanities I (3 Credits)
  - *Three hours per week*. This course offers an interdisciplinary study of the literature and philosophy of ancient and transitional Western, African, and Asian cultures, reinforced by experiences in music and art.
  - Prerequisites: ENGL 101, ENGL 102
- HUMA 202: Introduction to Humanities II (3 Credits)
  - *Three hours per week*. This course offers an interdisciplinary study of the literature and philosophy of Western, African, African-American, and Asian cultures, reinforced by experiences in music and art.
  - Prerequisites: ENGL 101, ENGL 102
- MISC 302: Introduction to Military Training (3 Credits)
  - *Three lecture hours, one and one-half lab hours*. This course is a practical continuation of the subject matter covered in the MISC 301 course. Students will continue to be challenged in furthering their development in the responsibilities of and techniques

utilized by a military leader. Their sub-course, like those in MISC 301, is developed to direct the thrust of education toward the knowledge, leadership, and management skills needed by an Army Second Lieutenant. Emphasis in the lecture will continue to be placed on the Army Leadership Development Program (LDP), land navigation, weapons qualification, squad and platoon level infantry tactics, physical training, and job performance. However, training and evaluation of these tasks will be entirely from the tactical perspective. Emphasis in the laboratory is still placed primarily on position assessment and performance as a cadet noncommissioned officer and assisting the cadet officers and cadre with the instruction of Basic Course cadets. Students enrolled in this course are required to attend physical training three to five days per week. Stu- dents will go to Field Training Exercises (FTX) at least once a month in order to apply classroom instruction in a practical environment on land navigation courses, squad tactical exercise lanes, or weapon ranges.

- MUSC 391: The World of Music (3 Credits)
    - *Three hours per week*. This survey course offers an introduction to European and American classical music from Antiquity to the present, and includes a unit on classical Jazz music. Students will be required to attend and write a paper summarizing a concert. This course is open to all university students; it requires no previous study of music. Fine and Performing Arts majors are encouraged to register.
- PHEC 300: Selected Roots of Afro-American Dance (3 Credits)
    - *Three hours per week*. This course is a historical study of dance from its roots in West Africa to the present day in the United States of America. Attention is given to the influences of enslavement, religion, superstitions, and cultural heritage. Stress is placed on the influence of Latin American climate, culture and habits of the dance evolution.
- PHIL 102: Introduction to Philosophy (3 Credits)
    - *Three hours per week*. This course consists of an introductory examination of the major approaches to philosophy and a careful consideration of various interpretations of the universe and their implications for a philosophy of life. It is open to freshmen and presupposes no previous course in philosophy.
- PHIL 220: Ethics and Values (3 Credits)
    - *Three hours per week*. This course explores contemporary moral issues stemming from business, science and technology, law, international affairs, the environment, public policy, interpersonal relations, etc., against the background of cultural values as illuminated by various ethical theories.
- PHIL 223: Introduction to the Philosophy of Politics (3 Credits)
    - *Three hours per week*. This course is an introduction to selected themes in social and political philosophy, including freedom, equality, power, and social change. It will consist of a close reading of a number of social and political philosophers.
- RELG 305: Introduction to World Religions (3 Credits)
    - *Three hours per week*. This course is a study of the cultural backgrounds, life of the founders, sacred literature, world view, ideals of conduct and institutional development of the major non-Christian religions of the world.
- THEA 210: History of the Theatre I (3 Credits)

- ○ *Three hours per week*. This course provides a historic account of active literature, styles and study of Theatre from Pre-Greek to Romanticism.
- THEA 312: Black Drama (3 Credits)
  - ○ *Three hours per week*. This course is designed to study and analyze the historical development and ideologies of African American Drama and Theatre.
- Foreign Language 102 or higher (3 Credits)

Biological and Physical Sciences (*Two courses required, at least one must be lab-based. Students in this Program are required to take the following courses)*
- BIOL 109: Introductory Biology I for Majors I (4 Credits)
  - ○ *Three lecture hours, three lab hours*. This course involves the study of the fundamental principles and concepts of biology with emphasis on molecular and cellular biology and heredity
- CHEM 105: Principles of General Chemistry I (3 Credits)
  - ○ *Three lecture hours.* This is the first semester of a two semester Principles of General Chemistry course. This course is for all majors which require 200 level chemistry courses or higher. The main goal of this course is to learn core topics of fundamental principles of chemistry. This includes modern atomic theory, the chemical bonding and the periodic law, stoichiometry, chemical reactions, thermochemistry, chemical reactions, molecular structure, kinetic molecular theory, and behavior of gases. Laboratory work introduces students to basic chemical techniques and includes development of good and safe laboratory techniques.

- CHEM 105L: Principles of General Chemistry I Lab
  - ○ *Three lab hours*. This is the first semester of a two semester Principles of General Chemistry course. This course is for all majors which require 200 level chemistry courses or higher. The main goal of this course is to learn core topics of fundamental principles of chemistry. This includes modern atomic theory, the chemical bonding and the periodic law, stoichiometry, chemical reactions, thermochemistry, chemical reactions, molecular structure, kinetic molecular theory, and behavior of gases. Laboratory work introduces students to basic chemical techniques and includes development of good and safe laboratory techniques.

Social and Behavioral Sciences (*Two courses from different disciplines required*)
- ECON 211: Principles of Economics I (3 Credits)
  - ○ *Three hours per week*. The focus of this course is on macroeconomics. Topics covered include the determinants of national income, employment, inflation, investment, the banking system, and government fiscal and monetary policies.
- ECON 212: Principles of Economics II (3 Credits)
  - ○ *Three hours per week*. The focus of this course is microeconomics. Topics covered include the theory of the firm, consumer theory, alternative market structures, public goods and distribution theory.
- HIST 101: World History I (3 Credits)

- ○ *Three hours per week*. These two courses are a survey of the development and spread of civilization from ancient times to the present day. These courses adopt a global perspective of history, while at the same time attempting to do justice to the distinctive character and recent development of individual civilizations and regions in the world.
- HIST 102: World History II (3 Credits)
  - ○ *Three hours per week*. These two courses are a survey of the development and spread of civilization from ancient times to the present day. These courses adopt a global perspective of history, while at the same time attempting to do justice to the distinctive character and recent development of individual civilizations and regions in the world.
- HIST 105: History of the United States I (3 Credits)
  - ○ *Three hours per week*. These two courses begin with colonial America and offer a survey of the political, economic, social, and cultural factors which have shaped the pattern of life in the United States.
- HIST 106: History of the United States II (3 Credits)
  - ○ *Three hours per week*. These two courses begin with colonial America and offer a survey of the political, economic, social, and cultural factors which have shaped the pattern of life in the United States.
- HIST 120: Topics in American History (3 Credits)
  - ○ *Three hours per week*. This course, an introduction to historical thinking, focuses on specific topics in American history, such as the history of war, disease, slavery, immigration, urbanization, religion, culture, or politics in America. Historical topics will be investigated deeply using primary and secondary sources to teach students to pose historical questions, to create narratives about the past, and to develop critical thinking and writing skills.
- HIST 130: Topics in World History (3 Credits)
  - ○ *Three hours per week*. This course, an introduction to historical thinking, focuses on specific topics in World history, such as the history of war, disease, slavery, population migrations, trade and cross-cultural contact, urbanization, religion, culture, or politics throughout the world. Historical topics will be investigated deeply using primary and secondary sources to teach students to pose historical questions, to create narratives about the past, and to develop critical thinking and writing skills.
- MHTC 103: Introduction to Group Dynamics (3 Credits)
  - ○ *Three hours per week*. Introduction to theory and practice of group functioning and interaction among and between group members are discussed. Small group activities in the class serve as processes to study and under- stand group development and behavior. Emphasis is placed on the development of effective group skills including verbal and non-verbal communication, conflict resolution, group cohesion, group roles, and group leadership.
- MISC 301: Introduction to Team and Small Unit Operations (Military Science III) (3 Credits)
  - ○ *Three lecture hours, one and one-half lab hours*. This begins the professional phase of the student's ROTC career. The broad objective is to further the development of the cadet in the responsibilities of and techniques utilized by a military leader. The sub-courses are developed to direct the thrust of education toward the knowledge, leadership, and management skills needed by an Army Second Lieutenant. Emphasis in the lecture will

be placed on the Army Leadership Development Program (LDP), land navigation, weapons qualification, squad and platoon level infantry tactics, physical training, and job performance. Emphasis in the laboratory will be placed primarily on position assessment and performance as a cadet non-commissioned officer and assisting the cadet officers and cadre with the instruction of Basic Course cadets during leadership laboratory or in ROTC extracurricular activities. Students enrolled in this course are required to attend physical training three to five days per week, depending on their performance on the Army Physical Fitness Test. Students are also required to go to Field Training Exercises (FTX) at least once a month in order to apply classroom instruction in a practical environment on land navigation courses, squad tactical exercise lanes, or weapon ranges.

- POSC 201: American National Government (3 Credits)
  - *Three hours per week*. This course is a survey of the national government, its organization and functions.
- POSC 206: Black Politics in America (3 Credits)
  - *Three hours per week*. This course is a study of the American political system from the point of view of Black Americans and their interests.
- PSYC 101: General Psychology (3 Credits)
  - *Three hours per week*. This course covers several areas of psychology including learning, motivation, emotion, developmental changes, personality, abnormal behavior, psychotherapy, and social behavior with special attention to the physiological and neurological bases of human behavior.
- SOCI 101: Introduction to Sociology (3 Credits)
  - *Three hours per week.* The objective of this course is to introduce the student to the systematic study of society. Emphasis is placed upon the major concepts of sociology and the scientific point of view in dealing with social phenomena. The course aims to enable the student to gain an understanding of questions which deal with humans in social relationships and to prepare the student for the study of societal issues and problems.
- SOCI 110: Introduction to Anthropology (3 Credits)
  - *Three hours per week*. This foundation course enhances self-knowledge, self-tolerance of diversity, and global understanding by providing insight into the human experience from the traditional four perspectives of the discipline (physical, archaeological, linguistic, and cultural). Ancient organisms and their behavior are examined, as is the study of the origin of the human species and its connection to primordial ancestors.
- SOSC 101: Introduction to the Social Sciences (3 Credits)
  - *Three hours per week*. This is a general course in the social sciences, which deals with facts, principles and concepts drawn primarily from the fields of history, sociology, psychology, anthropology, economics and political science, with some attention to the fields of geography and education.

Health and Healthful Living (*One of the following is required*)
- HLTH 103: Social Determinants of Health (3 Credits)
  - *Three hours per week*. This course is an in-depth study of health behavior in light of the nature of humans and the environment in which they live and interact. Human and social determinants expose students to the complex, integrated and overlapping determinants of

health that is often caused by social structures, social environments, physical environments, health services and economic systems. This course explores these systems which often play a role in health and health inequities on a national and global level.
- HLTH 203: Personal and Community Healthy (3 Credits)
    - *Three hours per week*. This course will cover the theory and practice of lifestyle wellness among individuals and groups as it relates to topics that examine attitudes, habits and critical skills needed to live a healthy life throughout one's lifespan. This course includes diverse topics and projects ranging from diet, exercise, stress management, alcohol consumption, drug use, sexual health awareness, safety education, violence in society, environmental health and aging
- NUSC 160: Introduction to Nutrition (3 Credits)
    - *Three lecture hours*. This course stresses the importance of a working knowledge of general nutrition principles and wise nutritional practices. Emphasis is placed on food nutrient sources, digestive processes, human metabolism and energy requirements particularly in the framework of the eating patterns of the American people.

Contemporary and Global Issues, Ideas, and Values (*The following course is required*)
- HIST 350: Introduction to the African Diaspora (3 Credits)
    - *Three hours per week*. This course traces the scattering of the peoples of African ancestry across their continental homeland, their subsequent dispersion around the world to Europe, the Middle East, Asia and the Americas, and the return to Africa. It places emphasis on resistance movements, slavery and emancipation, and current diasporic developments.
    - Prerequisite: Successful completion of 36 college credits.