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University Council

August 20, 2021

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Dear Colleagues:

The attached proposal from the Franklin College of Arts and Sciences for a new major in Data Science (M.S.) will be an agenda item for the August 27, 2021, Full University Curriculum Committee meeting.

Sincerely,

Susan Sanchez, Chair
University Curriculum Committee

cc: Provost S. Jack Hu
Dr. Rahul Shrivastav

UNIVERSITY SYSTEM OF GEORGIA

USG Academic Degree Program Application

Released

December 21, 2020

Point of Contacts

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Version Control

Date	*Changes*	*USG Approved date*	*Website update date*
12-18-2020	*Revised question 34 and 61 for clarity; Revised question 47 to include part b with the tuition comparison table for peer or competitive programs; reworded question 49 to include costs and benefits per fee; Revised question 50 related to additional costs to students; Revised question 51 to clarify the question related to indirect costs.*		

NOTE:

Italicization indicates a question or field on the in-take form

^= indicates accreditation related content

USG Routing

Program was part of the Annual Academic Forecast

This proposal can be expedited (Nexus, established concentration with strong enrollment)

This proposal requires USG integrated review

USG ACADEMIC PROGRAM APPLICATION

A. OVERVIEW
To be completed as part of SharePoint Submission

1. ***Request ID: (SharePoint Generated unique ID)****: 0409*
2. ***Institution Name:*** *University of Georgia*
3. ***USG Sector:*** *Research University*
4. ***School/Division/College:*** *Franklin College of Arts and Sciences*
5. ***Academic Department:*** *Computer Science, Statistics*
6. ***Proposed Program Name:*** *Master of Science with a major in Data Science*
7. ***Major:*** *Data Science*
8. ***CIP Code (6 digit):*** *30300101*
9. ***Degree Level:*** *Master's*
10. ***Anticipated Implementation Semester and Year^:*** *Fall 2022*
11. ***Was this program listed in the most recent Academic Forecast?***

☒ *Yes*
☐ *No (If no, explain why below)*

12. ***Program Description (Provide a description of the program to be used in the Board of Regents meeting packet):***

The demand for data scientists is increasing rapidly as large-scale data are being heavily utilized by industries and scientific research. Progress in Statistics, Data Mining, and Machine Learning combined with greater computational capabilities has resulted in dramatic improvements in the ability to analyze both structured (e.g., tabular) and unstructured (e.g., text, audio, image, and video) data. A data scientist will need to be able to manage the full lifecycle of data, which requires knowledge and skills from both Computer Science and Statistics. The proposed graduate program in Data Science will provide the students with a strong foundation in Data Science, covering algorithms, distributed systems, database management, and machine learning from Computer Science, and regression, time-series analysis, design of experiments, statistical learning, and Bayesian statistics from Statistics. Students graduating with an M.S. in Data Science will know how to develop software, design and maintain databases, process data in distributed environments, analyze the data using techniques from statistics, data mining and machine learning, provide visualizations of the data or the results of analysis, and assist decision makers. The program will include practical application of acquired knowledge and skills in the form of a Master's Project course. Upon graduation, students will be in high demand in the workforce with industry leaders such as Google, Amazon, Facebook, Coca-Cola, UPS, Delta Airlines, Home Depot, IBM, Intel, Samsung, Boeing, Goldman Sachs, AIG, Liberty Mutual, Johnson & Johnson, NASA, NIST, or DoD, or continue their education at the doctoral level. Several academic avenues should also be open to students, including Ph.D. in Data Science, Computer Science, Statistics, Management Information Systems, or Industrial Engineering.

13. **Accreditation^: Describe disciplinary accreditation requirements associated with the program (if applicable, otherwise indicate not applicable).**

N/A

14. Specify SACSCOC or other accreditation organization requirements^. Mark all that apply.

Substantive change requiring notification only [1]
Substantive change requiring approval prior to implementation [2]
Level Change [3]
None

B. STRATEGIC PLAN

15. How does the program align with your institutional mission and function^? If the program does not align, provide a compelling rationale for the institution to offer the program.

The Master of Science in Data Science will align with the mission of the University of Georgia as it provides the necessary expertise of graduates in the high-demand area of data science, including data management, data analytics, and machine learning. One of the missions of UGA is its commitment to excellence in public service, economic development, and technical assistance activities designed to address the strategic needs of the state of Georgia. This program will support this mission of UGA by providing a well-trained workforce in the aforementioned data science area.
The development of this M.S. program also aligns well with the larger goal of establishing the University of Georgia as a leader in the field of Data Science. The proposed Data Science (M.S.) degree will build a strong relationship with the Georgia Informatics Institutes for Research and Education (GII) at UGA, which is serving as a hub for informatics research and instruction. Masters students in the Data Science program will benefit greatly from the synergistic activities organized by GII including working with GII-faculty on research projects through directed studies.

This M.S. program also aligns with the trends in the nation. In order to meet the immediate demand for data scientists, many universities across the U.S. have launched Data Science programs, including University of Virginia, University of Wisconsin, Carnegie Mellon University, Columbia University, Harvard University, University of Missouri, University of Texas at Austin, Syracuse University, University of Denver, Southern Methodist University, and Duke University.

16. How does the program align with your institution's strategic plan and academic program portfolio? Identify the number of existing and new courses to be included in the program.

One of the three broad and mission-centered strategic directions in the UGA 2025 Strategic plan is "Promoting Excellence in Teaching and Learning". One of the main goals of this strategic direction is to expand experiential learning opportunities for all students. The Master of Science in Data Science will align with UGA's strategic plan and academic program portfolio as it not only provides a comprehensive training in a variety of Data Science topics but also provides experiential learning opportunities, giving students hands-on training via capstone projects to connect their academic foundations to the world beyond the classroom. More specifically, students completing the Data Science (M.S.) degree are required to complete a capstone project, which requires applying combination of concepts from computer science and statistics to do advanced data analytics involving a real data in a domain area.

The M.S. program includes four required existing courses and one new required course. In addition, students are required to take two elective courses from Computer Science and two elective courses from Statistics.

C. NEED

[1] See page 22 (Requiring Notification Only) of SACSCOC Substantive Change Policy and Procedures document.
[2] See page 17 (Requiring Approval Prior to Implementation) of SACSCOC Substantive Change Policy and Procedures document.
[3] See page 3 (Level Change Application) of SACSCOC Seeking Accreditation at a Higher or Lower Degree Level document for level change requirements.

17. Was this proposal and the design of the curriculum informed by talking with alumni, employers, and community representatives?

☒ *No*

☐ *Yes (If yes, use the space below to explain how their input informed this proposal)*

18. Does the program align with any local, regional, or state workforce strategies or plans?

☐ *No*

☒ *Yes (If yes, please explain below)*

According to the Bureau of Labor Statistics Occupational Outlook Handbook, from 2019 to 2029, the projected number of new jobs is 10,300 and the employment of data scientists is projected to grow 31% - much faster than average - during the 10-year timeframe. In fact, according to the Georgia Bureau of Labor Statistics Occupational Employment Statistics, for data scientists and mathematical science occupations, Georgia is among the top 10 states in the U.S. and metro-Atlanta is among the top 10 metropolitan areas in the U.S. with the highest employment levels.

	Employment	Location Quotient	Employment per 1000	Annual Mean Wage
U.S.	30,810	--	0.21	$100,560
Georgia	1,270	1.35	0.28	$81,520
Atlanta	920	1.60	0.34	$90,040

Therefore, the Master of Science in Data Science will align with Georgia's workforce strategies, as it will provide a well-trained workforce with the necessary expertise in the high-demand area of data science. The students graduating with a Master's degree in Data Science will have a wide range of job opportunities.

19. Provide any additional evidence of regional demand for the program^ (e.g. prospective student interest survey data, community needs, letters of support from employers)

Data Science is already a fast-growing area and there is more growth expected over the next few decades. Enormous data generation in research, business, government, and society is fueling the necessity for highly-trained data scientists who can manage, manipulate, and model voluminous data. It is well known that the demand for data scientists in the workforce over the next 5 to 10 years will far outpace supply.

For four years in a row, data scientist has been named the number one job in the U.S. by Glassdoor. What's more, the U.S. Bureau of Labor Statistics reports that the demand for data science skills will drive a 27.9 percent rise in employment in the field through 2026. Not only is there a huge demand, but there is also a noticeable shortage of qualified data scientists (https://data-flair.training/blogs/data-science-job-trends/).

The huge demand for professionals skilled in data, analytics, machine learning, and AI will be addressed by the education sector. Many industries, such as the cybersecurity industry, the aviation industry, healthcare industries, agriculture, and many others, are investing heavily in data science approaches to address their needs.

All of those sectors are recruiting from the limited number of data scientists available. And since 39% of the most rigorous data science positions require a degree higher than a bachelor's degree, the whole market, and the education sector in particular, will be playing catch-up from now on. Until there are enough highly skilled professionals for all these roles, companies will have to resort to creative solutions to fill those gaps (https://www.bmmagazine.co.uk/business/data-science-will-grow-in-scope-by-2020/).

The proposed M.S. program offered jointly between Computer Science and Statistics Departments will provide the graduates with the analytical skills that are needed for Data Scientists that include the statistics and computer science rigorous advanced topics (https://www.morningfuture.com/en/article/2018/02/21/data-analyst-data-scientist-big-data-work/235/). The Department of Computer Science has more than 1,155 undergraduate major students and more than 120 graduate students who pursue a master's degree in Computer Science each year. The Department of Statistics has about 180 undergraduate Statistics majors and about 50 students pursuing a master's degree in Statistics each year. At least 30 of the 50 graduate students who earn an M.S. degree in Statistics are dual-degree students who are simultaneously earning an M.S. or a Ph.D. degree in another discipline within UGA. The number of undergraduate Data Science majors has grown tremendously from 28 in fall 2019 to 76 in fall 2021. Therefore, the pool of potential students for the proposed M.S. in Data Science, even within UGA, is rather large since it would consist of students currently pursuing a B.S. in Computer Science, Statistics, or Data Science, and some of those who wish to pursue an M.S. degree in Computer Science or Statistics. Furthermore, many of the Computer Science and Statistics courses listed in the curriculum of the proposed M.S. program are popular on campus and have been experiencing a steady increase in enrollments.
At the national level, a large number of universities have started graduate programs in Data Science, and their programs are experiencing an undiminished and sustained upward trend. To gauge the interest among UGA students in pursuing the proposed M.S. degree in Data Science, on June 15, 2020, the departments conducted a formal, anonymous survey of UGA undergraduate Computer Science and Statistics majors who have completed at least 20 credit hours of courses in either discipline. The students were asked the following: "If an M.S. degree in Data Science was available in the Computer Science and Statistics Department at UGA next year, please indicate your level of interest in pursuing such degree: 5: No Interest, 4: Not sure, 3: Would consider, 4. Probably Yes, 1: Definitely Yes. Please circle only one choice."

Of the 70 students who responded to the survey, 16 picked Definitely Yes, 18 selected Probably Yes, 26 Would Consider, 6 Not Sure, and 4 No Interest. The same survey was sent to the students enrolled in the B.S. in the Data Science degree program that started in fall 2019. Of the 20 students who responded to the survey, 4 said Definitely Yes, 6 selected Probably Yes, 7 Would Consider, 3 Not Sure, and 0 No Interest. There is already a strong demand for such a degree within UGA and it will grow rapidly just as in the case of the bachelor's degree in Data Science.

For the first year, the projected enrollment in the proposed M.S. in Data Science is approximately 15 students. Each year thereafter, the program is expected to grow by at least five new students. The total number of students in the master's program is expected to grow to about 52 students by 2025. In the long term, the program is expected to have a healthy growth, given the demand for an M.S. in Data Science degree in the nation.

An important feature of this major will be its likely appeal to a diverse body of students. In fact, of the 28 Data Science (B.S) majors at UGA in fall 2019, 14 were White, 7 were Asian, 3 were Black or African American, 1 was multi-race, and the remaining 3 did not report their race. Of the 76 Data Science (B.S.) majors at UGA in fall 2021, 30 are White, 28 are Asian, 7 are Black or African American, 5 are Hispanic or Latino, 3 are multi-race, and the remaining 3 did not report their race. Clearly, the student body in the Data Science major is diverse and, more importantly, the percentage of underrepresented students in the major is growing. This trend suggests a similar demand from a diverse group of students for the proposed Data Science (M.S.) degree.

As is well known, female students are seriously underrepresented in mathematics and computer science. However, enrollment of female undergraduate students in Statistics more closely mirrors the overall campus gender distribution. Statistics is also beginning to see underrepresented students pursuing an M.S. in Statistics. The departments will send informative flyers about the M.S. in Data Science program to public and private schools, including Historically Black Colleges, in Georgia and neighboring states. The proposed master's program will be very attractive for students interested in pursuing a UGA Double Dawgs program, such as: a B.S. in Computer Science and M.S. in Data Science; B.S. in Statistics and M.S. in Data Science; B. S. in Engineering and M.S. in Data Science; B.S. in Data Science and M.S. in Data Science; and B.S. in Mathematics and M.S. in Data Science.

20. Identify the partners you are working with to create a career pipeline with this program[4].^

Mark all that apply

☐ High School CTAE

☐ High School STEM
☐ Career academies
☐ TCSG programs
☐ Other USG institutions
☐ Other universities
☐ Employers
☐ Community partnerships
☐ Professional associations
☐ Other (specify below)
Click or tap here to enter text.
☒ None

21. Are there any competing programs at your own institution?

☒ *No*

☐ *Yes (If yes, provide additional information about the competing program(s) below).*

22. The program service area is used as the basis for labor market supply and demand analysis. What is the program's service area (local, regional, state, national)? If outside of the institution's traditional service area, provide a compelling rationale for the institution to offer the program. If the program's service area is a region within the state, include a map showing the counties in the defined region.

The program service area is national and international.

23. Do any other higher education institutions in close proximity offer a similar program?

☐ *No*

☒ *Yes (If yes, provide a rationale for the institution to offer the program)*

Currently, there is no master's degree in Data Science offered at the University of Georgia. The following table gives a list of seven (7) related master's level programs that are (or will be) offered at different public schools in Georgia.

Institution Name	Title of the Program with Link	Notes
University of Georgia	Graduate Certificate in Agricultural Data Science	The College of Agricultural and Environmental Sciences offers this program.
University of Georgia	Business Analytics (M.S.)	The Terry College of Business offers this one-year program.

4 Provide letters of support and explain the collaboration and how partners will share or contribute resources. (Consider internal pipeline programs – "off-ramp program" Nursing to integrated health or MOUs for pathways with other USG institutions (pipelines – keep them in state for grad school if we can)

Georgia Institute of Technology	Analytics (M.S.)	The College of Business, the College of Computing, and the College of Engineering offers this program. This is also offered online.
Georgia State University	Data Science and Analytics (M.S.)	The College of Business offers this program.
Mercer University	Business Analytics (M.S.)	The School of Business offers this program.
Southwest Georgia Technical College	Predictive Analytics (M.S.)	This online program is offered by the Moravian Graduate Online.
Augusta University	Data Science (M.S.)	This program launched in fall 2021. It is jointly administered by the Division of Biostatistics and Data Science in the Department of Population Health Sciences.

All the master's programs listed in the table above, except the recently launched Data Science (M.S.) at Augusta University, have a strong focus toward business applications since the programs are either jointly or solely administered by respective business schools. The program at Augusta University focuses on applications in the health sciences. In contrast, the proposed Data Science (M.S.) at UGA is unique in that it will be jointly administered by two strong disciplines—Computer Science and Statistics—which are the foundational pillars of data science. This partnership between the two disciplines makes this program demonstrably unique in the state of Georgia in terms of foundational training, breadth of application, and addressing the global need and demand for data scientists with deep analytical skills. In fact, unlike the programs listed in the table, the program of study in the proposed Data Science (M.S.) places equal emphasis on both computer science and statistics in terms of the core courses while allowing the students to select from a large array of elective courses in both the disciplines to customize their focus. The proposed program is designed to produce the next generation of data scientists who can not only construct novel statistical models to analyze big data arising in or outside of a business/health context, but also create computational methodologies and tools to effectively leverage the available big data, process them, and draw statistically valid conclusions. Thus, the proposed Data Science (M.S.) does not present a duplication of the existing master's programs within Georgia. More importantly, given the high demand for data scientists in state of Georgia, even with the Data Science (M.S.) program at Augusta University, there will not be enough skilled data scientists to meet the ever-increasing demand. Therefore, the proposed program has the potential to make a big impact in the available Data Science talent for the entire State of Georgia.
Finally, another unique aspect that distinguishes the proposed Data Science (M.S.) from the other programs in Georgia is that it will provide a natural pathway for UGA's undergraduate Data Science majors and provide an opportunity to create a UGA Double Dawgs pathway to ambitious and motivated students who want to earn both a bachelor's degree and a master's degree in five years or less, thereby saving time and money while positioning themselves for a successful career in data science after graduation.

24. Based on the program's study area, what is the employment outlook for occupations related to the program, according to the CIP to SOC crosswalk in the Qlik IPEDS Application^. An Excel version of the CIP to SOC crosswalk is also available from NCES. If data for the study area is not available, then use state- or national-level data.

a. Click **here** for US and Georgia occupation projections

b. Click **here** for 2026 Georgia Department of Labor data projections for the State or Georgia Workforce Board Regions in Qlik (link to GDOL Projections); data is also available through the GDOL Labor Market Explore Website

c. For a custom Georgia geography – request a Jobs EQ report from **USG Academic Affairs office.**

Related Occupation	SOC code	Current Employment [2019 US]	Projected Employment [2029 US]	# Change	% Change	Average Annual Openings
Natural sciences managers	11-9121	71,400	74,800	3,400	4.80	4,900
Computer programmers	15-1251	213,900	193,800	-20,100	-9.40	10,400
Computer occupations, all other	15-1299	431,100	455,800	24,700	5.70	32,300
Data Scientists	15-2051					
Mathematical Science Occupations, All Other	15-2099					
Computer science teachers, postsecondary	25-1021	38,500	39,500	1,000	2.60	3,000
Postsecondary teachers, all other	25-1199	245,900	250,700	4,800	2.00	18,900

d.

25. Using IPEDS data, list the supply of graduates in the program and related programs in the service area.^

Similar or Related Programs	CIP Code	Supply[1]	Competitor Institutions[2]

[1] Supply = Number of program graduates last year within the study area
[2] Competitors = List other institutions that offer this program or a similar program in the area (see **Question 23**)

26. Based on the data provided in questions 24 and 25, discuss how this program will help address a need or gap in the labor market?^

Data Science is already a fast-growing area and there is more growth expected over the next few decades. Enormous data generation in research, business, government, and society is fueling the necessity for highly-

trained data scientists who can manage, manipulate, and model voluminous data. It is well known that the demand for data scientists in the workforce over the next 5 to 10 years will far outpace supply.

For four years in a row, data scientist has been named the number one job in the U.S. by Glassdoor. What's more, the U.S. Bureau of Labor Statistics reports that the demand for data science skills will drive a 27.9 percent rise in employment in the field through 2026. Not only is there a huge demand, but there is also a noticeable shortage of qualified data scientists (https://data-flair.training/blogs/data-science-job-trends/).

The huge demand for professionals skilled in data, analytics, machine learning, and AI will be addressed by the education sector. Many industries, such as the cybersecurity industry, the aviation industry, healthcare industries, agriculture, and many others, are investing heavily in data science approaches to address their needs.

All of those sectors are recruiting from the limited number of data scientists available. And since 39% of the most rigorous data science positions require a degree higher than a bachelor's degree, the whole market, and the education sector in particular, will be playing catch-up from now on. Until there are enough highly skilled professionals for all these roles, companies will have to resort to creative solutions to fill those gaps (https://www.bmmagazine.co.uk/business/data-science-will-grow-in-scope-by-2020/).

26. 27. Using data from *O*-Net,* identify the average salary for the related occupations identified in question 24. Then list at least three technical skills and three Knowledge, Skills and Abilities (KSAs) associated with the related occupations. This information can be found using at onetonline.org. (Standard Occupation Code = SOC)

SOC Code (6 digit)	Average Salary (O-Net data)	Occupation specific technology skills & KSAs
11-9121	$66.32 hourly, $137,940 annual	https://www.onetonline.org/link/summary/11-9121.00
15-1251	$42.88 hourly, $89,190 annual	https://www.onetonline.org/link/summary/15-1251.00
15-1299	$44.65 hourly, $92,870 annual	https://www.onetonline.org/link/summary/15-1299.00
15-2051	$47.23 hourly, $98,230 annual	https://www.onetonline.org/link/summary/15-2051.00
15-2099	$47.23 hourly, $98,230 annual	https://www.onetonline.org/link/summary/15-2099.00
25-1021	$85,540 annual	https://www.onetonline.org/link/summary/25-1021.00
25-1199	$71,950 annual	https://www.onetonline.org/link/summary/25-1199.00

28. Using GOSA Earning and Learnings data, what is the typical salary range 5 years after graduation from the program?

Average Salary	75th Percentile	50th Percentile	25th Percentile
1 year after graduation			
5 years after graduation			

Provide any additional comments, if needed: There is no data available for Data Science in GOSA Earning and Learnings.

29. Based on the data compiled and analyzed for this section (see Section C: Need), what is the job outlook for occupations filled by students with this degree?^

Data Science is already a fast-growing area and there is more growth expected over the next few decades. Enormous data generation in research, business, government, and society is fueling the necessity for highly-trained data scientists who can manage, manipulate, and model voluminous data. It is well known that the demand for data scientists in the workforce over the next 5 to 10 years will far outpace supply.

D. CURRICULUM

30. Enter the number of credit hours required to graduate^

32 credit hours

31. Are you requesting a credit hour requirement waiver (either below or above traditional credit hour length requirements as prescribed by the University System of Georgia? See section 2.3.5 (Degree Requirements) of the USG Board of Regents Policy Manual here for more information).

No

☐ *Yes (*If yes, explain the rationale for the request in the space below*)*

32. Related to SACSCOC accreditation, specify if the program format of the proposed program is a^:

Format (Check 1)		50% or more of the program is delivered online
☐	Combination of on-campus and online	☐ Yes
☐	Combination of off-campus and online	☐ Yes
☐	Hybrid, combination delivery	☐ Yes

33. Is the program synchronous or asynchronous?[5] Mark one of the options below.

☐ Synchronous

The majority of courses are offered at scheduled, pre-determined times with students connecting to a virtual room or location and interacting with faculty and fellow students via web/video conferencing platform.

[5] See SACSCOC Handbook for Institutions Seeking Initial Accreditation here.

Asynchronous

34. For associate's, Nexus, and bachelor's degree proposals, which High Impact Practices[6] (HIPs) will faculty embed into the program? Mark all that apply.

x First-Year Experiences
☐ Common Intellectual Experiences
☐ Learning Communities
x Writing-Intensive Courses
x Collaborative Assignments and Projects
☐ Undergraduate Research
☐ Diversity/Global Learning
☐ ePortfolios
☐ Service Learning, Community Based Learning
x Internships
☐ Capstone Courses and Projects

35. Discuss how HIPs will be embedded into the program? Your discussion should provide specific examples and include whether the HIP is required or an optional component. It should also indicate at what point the experience is offered or required.

The GradFIRST seminar (GRSC7001) will be offered Fall 2022 for the first time at UGA. This seminar is intended to help prepare all graduate students for success regardless of their discipline or background. It is a required course. The Writing Intensive Program is optional but recommended. The Collaborative Assignments and Projects will be incorporated into the 8000 level courses and some of the 6000 level courses. This is required. Internships are optional, but encouraged.

36. Does the program take advantage of any USG initiatives? No
Mark all that apply, and provide a letter of support from applicable initiatives' leadership.

[ ] eCampus
[ ] FinTECH
[ ] Georgia Film Academy
[ ] Other: Specifiy Initiative Here

37. ^For associate's, Nexus, and bachelor's degree proposals, list the specific occupational technical skills, and KSAs identified in question 27 and show how they related to the program learning outcomes. Insert more rows as needed.

Complete this chart for the upper division or major curriculum only.
[1] Direct measures may include assessments, HIPs, exams, etc.

Alignment of Occupational KSAs [1]	Student Learning Outcome (s)	Direct Measure (s)	Data Source
15-1251.00	**1, 2, 3, 4, 5, 6(see below)**	**Exams**	
15-1299.00	**1, 3, 4**	**Exams**	
15-2051.00	**1, 2, 3, 4, 5, 6**	**Exams**	
15-2099.00	**1, 2, 4, 6**	**Exams**	
25-1021.00	**1, 3, 4**	**Exams**	
25-1199.00	**1, 3, 4**	**Exams**	

[6] See Kuh (2008). High-Impact Practices: What They Are, Who Has Access to Them, and Why They Matter. *Association of American Colleges and Universities*, *14*(3), 28-29).

Learning outcomes:

All graduates earning the Data Science (M.S.) degree offered by the Franklin College of Arts and Sciences will learn the essential skills necessary to pursue careers in a variety of data-oriented companies [e.g., computing/internet companies (Google, Amazon, Facebook, IBM); engineering companies (Intel, Samsung, Boeing); finance/insurance (Goldman Sachs, AIG, Liberty Mutual) companies; pharmaceutical companies (Johnson & Johnson)]; government/national labs (NASA, NIST, DoD) or pursue further graduate studies in Statistics, Computer Science, or other disciplines. All graduates will be able to:

1. Develop and implement data analysis strategies based on sound principles of Statistics and Computer Science;
2. Demonstrate and articulate appropriate statistical and computing strategies that can be used to extract evidence from data;
3. Develop software, algorithms; design and manage a variety of databases and structures, process data in distributed environments;
4. Collect and analyze the data using techniques from statistics, data mining, machine learning;
5. Provide visualizations of the data and build statistical models to facilitate inference and policy decisions;
6. Interpret results of statistical analysis and assist decision makers.

38. For associate's, Nexus, and bachelor's degree proposals, fill in the table below to demonstrate the link between the learning outcomes and NACE career ready competencies. Insert more rows as needed.

Career Ready Competencies (NACE)	Student Learning Outcomes	Direct Measure (s)[1]
Critical Thinking/Problem Solving	**1, 4**	**Exams**
Oral/Written Communications	**2, 6**	**Exams**
Team Work/ Collaboration	**1, 2, 3, 4, 6**	**Exams**
Digital Technology	**1, 2, 3, 4, 5**	**Exams**
Leadership	**2, 6**	**Exams**
Professionalism/ Work Ethic	**2, 6**	**Exams**
Career Management		
Global/Intercultural Fluency		

[1] Direct measures may include assessments, HIPs, exams, etc.

39. How will learning outcomes for the program be assessed? ^ Attach the curriculum map for the upper division or major curriculum.

All academic programs are reviewed annually to assess the program outcomes and student learning outcomes. Students completing Data Science (M.S.) are required to complete a capstone project, which requires applying combination of concepts from computer science and statistics to do advanced data analytics in a domain area. The capstone project course objectives will encompass the student learning outcomes for the program. In addition, the new major will be assessed as part of the UGA comprehensive program review carried out every seven years.

40. How will outcomes for graduates of the program be assessed?

(Outcomes may include employment and placement rates, student or employer surveys, or other assessments of graduate outcomes)

In order to assess if the major provided the graduates with the skills and knowledge needed for working in the industry, we will create a database of the graduates and, every year, send a survey to the graduates as well as to their employees. The survey results will be used to make changes to the program if necessary.

41. List the entire course of study required to complete the academic program.^
Include course: prefixes, numbers, titles, and credit hour requirements
Indicate the word "new" beside new courses
Include a program of study

For the M.S. in Data Science degree, the table below lists the "**Required Courses**" under C.1, C.2, and C.3. a or b (at least 18 credit hours) and the "**Electives**" (at least 14 credit hours). In C.3, students are allowed to choose either a non-thesis (C.3.a) option or a thesis (C.3.b) option. Students will only be admitted to one of these tracks. Students must additionally complete CSCI 3030 or STAT 8920 if they have not already taken a suitable ethics course. The coursework consists of 32 semester hours.

	Course Prefixes & Numbers	Course Titles	Credit Hours	
	C.1. Core Courses			8
1	CSCI (STAT) 6375	Foundations of Data Science **(NEW)**	4	
2	CSCI 6360	Data Science II	4	
	C.2. Advanced Courses			6
	STAT 6420	Applied Linear Models	3	
3	Or	or		
	STAT 6530	Statistical Inference for Data Scientists	3	
4	STAT 8330	Advanced Statistical Applications and Computing	3	
	C.3.a. Non-thesis option			4
	CSCI 7200	Master's Project	4	
	Or	or		
	STAT 7000	Master's Research		

5	**C.3.b. Thesis option** CSCI 7300 or STAT 7300	Master's Thesis or Master's Thesis	4	
	Electives (Two courses from each category)*			14*
6	Category A (see below)	CSCI Elective 1	4	
7		CSCI Elective 2	4	
8	Category B (see below)	STAT Elective 1	3	
9		STAT Elective 2	3	
	Total Credit Hours			

*The **14 credit hours** of Electives mentioned in the table above will consist of **8 credit hours** from **Category A (Computer Science)** and **6 credit hours** from **Category B (Statistics)** listed below. The electives provided under categories A and B consist of a wide range of courses in the two disciplines – Computer Science and Statistics – which will allow the students to select courses based on their interests, goals, and career paths in consultation with their academic advisor. Listed below are four sample programs, each giving a coherent list of elective course combinations. These sample programs will be made available to prospective students.

Program of Study – Graduate Only (Sample Program 1)

Courses (list acronym, number, and title)	**Semester**	**Hours**
CSCI(STAT) 6375, Foundations of Data Science (NEW)	First Year, Fall	4
STAT 6420, Applied Linear Models	First Year, Fall	3
STAT 6250, Applied Multivariate Analysis and Statistical Learning	First Year, Fall	3
CSCI 6360, Data Science II	First Year, Spring	4
CSCI 6370, Database Management	First Year, Spring	4
STAT 8060, Statistical Computing I	First Year, Spring	3
CSCI 8360, Data Science Practicum	Second Year, Fall	4
CSCI 7200, Master's Project	Second Year, Fall	4
STAT 8330, Advanced Statistical Applications and Computing	Second Year, Fall	3
	Total	**32**

Program of Study- Graduate Only (Sample Program 2).

Courses (list acronym, number, and title)	Semester	Hours
CSCI(STAT) 6375, Foundations of Data Science (NEW)	First Year, Fall	4
STAT 6420, Applied Linear Models	First Year, Fall	3
STAT 6250, Applied Multivariate Analysis and Statistical Learning	First Year, Fall	3
CSCI 6360, Data Science II	First Year, Spring	4
CSCI 6380, Data Mining	First Year, Spring	4
STAT 6430, Design and Analysis of Experiments	First Year, Spring	3
CSCI(ARTI) 8950, Machine Learning	Second Year, Fall	4
CSCI 7200, Master's Project	Second Year, Fall	4
STAT 8330, Advanced Statistical Applications and Computing	Second Year, Fall	3
	Total	**32**

Program of Study- Graduate Only (Sample Program 3).

Courses (list acronym, number, and title)	Semester	Hours
CSCI(STAT) 6375, Foundations of Data Science (NEW)	First Year, Fall	4
STAT 6420, Applied Linear Models	First Year, Fall	3
STAT 8060, Statistical Computing I	First Year, Fall	3
CSCI 6360, Data Science II	First Year, Spring	4
CSCI 6370, Database Management	First Year, Spring	4
STAT 8000, Introductory Statistical Collaboration	First Year, Spring	3
CSCI 6795, Cloud Computing	Second Year, Fall	4
CSCI 7200, Master's Project	Second Year, Fall	4
STAT 8330, Advanced Statistical Applications and Computing	Second Year, Fall	3
	Total	**32**

Program of Study- Graduate Only (Sample Program 4).

Courses (list acronym, number, and title)	Semester	Hours
CSCI(STAT) 6375, Foundations of Data Science (NEW)	First Year, Fall	4
STAT 6530, Statistical Inference for Data Scientists	First Year, Fall	3
STAT 6350, Applied Bayesian Statistics	First Year, Fall	3

CSCI 6360, Data Science II	First Year, Spring	4
CSCI 6150, Numerical Simulations in Science and Engineering	First Year, Spring	4
STAT 8210, Multivariate: Theory and Methods	First Year, Spring	3
CSCI 6470, Algorithms	Second Year, Fall	4
CSCI 7200, Master's Project	Second Year, Fall	4
STAT 8330, Advanced Statistical Applications and Computing	Second Year, Fall	3
	Total	**32**

Category A:
CSCI 6150 (4 hours) - Numerical Simulations in Science and Engineering
CSCI 6170 (4 hours) - Introduction to Computational Investing
CSCI 6210 (4 hours) - Simulation and Modeling
CSCI 6370 (4 hours) - Database Management
CSCI 6380 (4 hours) - Data Mining
CSCI 6470 (4 hours) - Algorithms
CSCI 6780 (4 hours) - Distributed Computing Systems
CSCI 6795 (4 hours) - Cloud Computing
CSCI 6850 (4 hours) - Biomedical Image Analysis
CSCI 8360 (4 hours) - Data Science Practicum
CSCI 8370 (4 hours) - Advanced Database Systems
CSCI 8380 (4 hours) - Advanced Topics in Information Systems
CSCI 8535 (4 hours) - Multi Robot System
CSCI 8790 (4 hours) - Advanced Topics in Data Intensive Computing
CSCI 8820 (4 hours) - Computer Vision and Pattern Recognition
CSCI 8850 (4 hours) - Advanced Biomedical Image Analysis
CSCI 8920 (4 hours) - Decision Making Under Uncertainty
CSCI 8945 (4 hours) - Advanced Representation Learning
CSCI(ARTI) 8950 (4 hours) - Machine Learning
CSCI 8951 (4 hours) - Large-Scale Optimization for Machine Learning
CSCI 8955 (4 hours) - Advanced Data Analytics: Statistical Learning and Optimization.
CSCI 8960 (4 hours) - Privacy-Preserving Data Analysis

Category B:
STAT 6240 (3 hours) – Sampling and Survey Methods
STAT 6250 (3 hours) - Applied Multivariate Analysis and Statistical Learning
STAT 6280 (3 hours) - Applied Time Series Analysis
STAT 6350 (3 hours) - Applied Bayesian Statistics
STAT 6430 (3 hours) - Design and Analysis of Experiments
STAT 6510 (3 hours) - Mathematical Statistics I
STAT 6620 (3 hours) - Applied Categorical Data Analysis
STAT 6800 (3 hours) - Tools for Statistical Theory
STAT 8000 (3 hours) - Introductory Statistical Collaboration
STAT 8060 (3 hours) - Statistical Computing I
STAT 8070 (3 hours) - Statistical Computing II
STAT 8210 (3 hours) - Multivariate: Theory and Methods
STAT 8230 (3 hours) - Applied Nonlinear Regression
STAT 8260 (3 hours) - Theory of Linear Models
STAT 8270 (3 hours) - Spatial Statistics
STAT 8280 (3 hours) - Time Series Analysis

STAT 8290 (3 hours) - Advances in Experimental Designs
STAT 8620 (3 hours) - Categorical Data Analysis and Generalized Linear Models
STAT 8630 (3 hours) - Mixed-Effect Models and Longitudinal Data Analysis

Program of Study- Graduate Only (Sample Program).

Courses (list acronym, number, and title)	**Semester**	**Hours**
CSCI(STAT) 6375, Foundations of Data Science (NEW)	First Year, Fall	4
STAT 6420, Applied Linear Models	First Year, Fall	3
STAT 6250, Applied Multivariate Analysis and Statistical Learning	First Year, Fall	3
CSCI 6360, Data Science II	First Year, Spring	4
CSCI 6370, Database Management	First Year, Spring	4
STAT 8000, Introductory Statistical Collaboration	First Year, Spring	3
CSCI 8360, Data Science Practicum	Second Year, Fall	4
CSCI 7200, Master's Project	Second Year, Fall	4
STAT 8330, Advanced Statistical Applications and Computing	Second Year, Fall	3
	Total	**32**

E. IMPLEMENTATION

42. Provide an enrollment projection for the next four academic years^
The table below gives the enrollment projections for each year beginning fall 2022.

	Year 1	Year 2	Year 3	Year 4
Fiscal Year (Fall to Summer)	2022-23	2023-24	2024-25	2025-26
Base enrollment[1]		15	18	23
Lost to Attrition (should be negative)	0	0	0	0
New to the institution	10	15	22	29
Shifted from Other programs within your institution	5	3	1	0
Total Enrollment	15	33	41	52
Graduates	0	15	18	23
Carry forward base enrollment for next year	15	18	23	29

[1]Total enrollment for year 1 becomes the base enrollment for year 2.

a. Discuss the assumptions informing your enrollment estimates (i.e. for example, you may highlight anticipated recruiting targets and markets, if and how program implementation will shift enrollment from other programs at the institution, etc.)

As mentioned in Section 19, the pool of potential students for the proposed Data Science (M.S.) even within UGA is rather large since it would consist of students currently pursuing a B.S. in Computer Science (≈ 1,155) or Statistics (≈ 180) or Data Science (≈ 76) and some of those who wish to earn an M.S. degree in Computer Science (≈ 120) or Statistics (≈ 50). Of the total 90 students who responded to the survey referenced in Section 19, 44 indicated "Definitely Yes" or "Probably Yes" in pursuing an M.S. in Data Science. The Statistics department also expects a number of dual-degree students who wish to earn an M.S. in Statistics but are simultaneously earning an M.S. or a Ph.D. degree in another discipline within UGA to shift to the proposed Data Science (M.S.). Based on these and the survey results, the conservative enrollment projection for Year 1 (2022) of the new program is 15, which assumes that five of the existing MS students from Computer Science or Statistics will shift into the new program and 10 new students will enter the new program. Given that the Data Science (B.S.) major has nearly tripled in enrollment since its introduction in fall 2019 (28 students in fall 2019 to about 76 students in fall 2021), the two departments conservatively estimate new enrollments in the master's program at 15 new students for year 2, followed by a modest increase in the numbers during years 3 and 4, respectively, reaching a projected total number of 52 students in the program by 2025.

b. If projections are significantly different than enrollment growth for the institution overall, please explain.

N/A

43. If projected program enrollment is not realized in year two, what actions are you prepared to take?

If projections are not realized in year two, the directors of the program—heads of Computer Science and Statistics—along with the two respective graduate coordinators will develop a recruitment strategy to increase enrollment.

44. Discuss the marketing and recruitment plan for the program. Include how the program will be marketed to adult learners and underrepresented and special populations of students. What resources have been budgeted for marketing the new program?

The departments will utilize a number of venues including New Dawgs, Orientation, Advising, and Majors Fair to recruit and advertise. To publicize the program, the departments will also use their websites, social media platforms such as Twitter and Facebook, and mail or email brochures and newsletters to potential feeder programs both at UGA and nationwide. This will begin in fall 2022 or as soon as USG approval is secured. The Department of Computer Science and Department of Statistics will use their resources to market the new program.

45. Provide a brief marketing description for the program that can be used on the Georgia OnMyLine website.

The M.S. program in Data Science will provide students with a strong foundation in Data Science, covering algorithms, distributed systems, database management, and machine learning from Computer Science, and regression, time-series analysis, design of experiments, statistical learning, and Bayesian statistics from Statistics. Students graduating with an M.S. in Data Science will know how to develop software, design and maintain databases, process data in distributed environments, analyze the data using techniques from statistics, data mining and machine learning, provide visualizations of the data or the results of analysis, and assist decision-makers. The program will include practical application of acquired knowledge and skills in the form of a Master's Project course.

46. If this proposal is for a Doctorate program, provide information below for at least three external and one USG reviewer of aspirational or comparative peer programs.

N/A

Note: External reviewers must hold the rank of associate professor or higher in addition to other administrative titles.

Reviewer 1 Name	**Reviewer 2 Name**	**Reviewer 3 Name**
Reviewer 1 Title	Reviewer 2 Title	Reviewer 3 Title
Reviewer 1 Institution	Reviewer 2 Institution	Reviewer 3 Institution
Reviewer 1 Email Address	Reviewer 2 Email Address	Reviewer 3 Email Address
Reviewer 1 Phone Number	Reviewer 2 Phone Number	Reviewer 3 Phone Number

USG Reviewer Name
USG Reviewer Title
USG Reviewer Institution
USG Reviewer Email Address

F. RESOURCES

F1. Finance^: Complete and submit the Excel budget forms and the questions below (Do not cut and paste in the excel budget template into this document, submit the Excel budget templates separately.)

47. Are you requesting a differential tuition rate for this program? (masters, doctoral, and professional programs only)

☒ No (Move to answer question 48)

☐ Yes (If yes, answer questions 47a & 47b)

a. What is the differential rate being requested? The rate below should reflect the core tuition plus the differential, i.e. the tuition rate being advertised to the student.

In-State per Semester: $Enter Amount
Out-of-State per Semester: $Enter Amount

N/A

b. Provide tuition and mandatory fee rates assessed by competitive/peer programs per full-time student per semester. Please complete the table below:

Institution name	Link to institution's tuition & fee website	In-state tuition	Out-of-state tuition	In-state fees	Out-of-state fees

48. If existing funds are being reallocated, describe the impact on existing programs and the plan to mitigate these impacts.

All resources needed for the program are pre-existing. The departments will utilize the current resources (personnel, library, equipment, laboratory, and computing) available at the departmental and university level. There will be no impact on existing programs.

49. If student fees are being charged (excluding mandatory fees), explain the cost and benefit to students, per fee.

N/A

50. Are there any additional financial costs that students will have to take on as part of this program, but not assessed directly by the institution? (e.g. software licenses, equipment, travel, etc.) If so, please describe these costs and what strategies you have considered to decrease the student's financial burden?

No

27. 51. How does the institution plan for and fund increased indirect costs associated with the growth in students anticipated in the proposed program? Consider costs such as student advisement, student support services, tutoring, career services, additional library materials, technology, or other infrastructure.

The Department of Computer Science and the Department of Statistics will use their faculty resources for student advisement just as we do for our other graduate programs. All other costs related to technology and other services listed here (including more classroom space) are covered by existing resourses.

F2. Faculty^ – Explain your faculty and staff plan for the program.

52. Discuss how existing courses may be incorporated into this new program:

a. Course Development

# of total courses in the curriculum:	**Enter # 9**
# of existing courses to be part of the new program	**Enter #8**
Net number of new courses to be developed	**Enter #1**

b. Comment on the costs and workload related to the new course development.
The course will be developed by one faculty from Computer Science and one faculty from Statistics. The two departments will share the cost.

53. Explain how <u>current faculty and staff</u> will contribute to the program.^

a. How many faculty will be re-directed to this program from existing programs?

Enter #0

b. If this program is approved, what will be the new teaching load and distribution of time for the current faculty members? How will existing staff be impacted?

Neither the teaching load of current faculty members nor their distribution of time will change if the program is approved. The existing staff will not be impacted either. As enrollments increase, new positions are anticipated for this proposed program. For example, an enrollment increase of 30 to 35 students would suggest the need to hire a new faculty member. There is not an anticipated impact on existing staff. Each Department has two Graduate coordinators.

c. List the faculty that will be redirected from their current teaching load assignments to support this new program

N/A

d. **Explain who will be teaching the existing courses that are being released so faculty can teach a new program course. Additionally, please discuss the fiscal implications associated with course releases and redirections of faculty.**
N/A

e. What costs are included in your budget for course development? (Consider professional development, course development time buy out, overload pay, and re-training)

No costs needed.

f. Attach your SACSCOC roster for the proposed program. Include in parentheses the individual with administrative responsibility for the program and whether listed positions are projected new hires and/or currently vacant.

Faculty Name	**Rank**	**Courses Taught (including term, course number & title, credit hours (D, UN, UT, G)**	**Academic Degrees & Coursework** **(relevant to courses taught, including institution & major; list specific graduate coursework, if needed)**	**Current Workload**	**Other Qualifications & Comments (related to courses taught)**
Yuan Ke	Assistant Professor	**Spring** STAT 4250/6250, Applied Multivariate Analysis and Statistical Learning, 3.0 (UT/G) **Fall** STAT 6510, Mathematical Statistics I, 3.0 (G)	Ph.D. in Mathematics – The University of York M.Sc. (Research) in Statistics – London School of Economics and Political Science B.Sc. in Physics, Beijing Normal University	3-6 credit hours/semester	**Ph.D. Thesis:** Feature Selection and Structure Specification in Ultra-High Dimensional Semi-Parametric Model with an Application in Medical Science
Abhyuday Mandal	Professor	**Spring** STAT 6430, Design and Analysis of Experiments, 3.0 (G) **Fall** STAT 6420, Design and Analysis of Experiments, 3.0 (G)	Ph.D. Statistics, Georgia Institute of Technology M.A. Statistics, University of Michigan M.S. Statistics, Indian Statistical Institute B.S. Statistics, Indian Statistical Institute	3-6 credit hours/semester	**Ph.D. thesis:** Some Contributions to Design Theory and Applications

Jaxk Reeves	Associate Professor	**Spring** STAT 8000, Introductory Statistics Collaboration, 3.0 (G) **Fall** STAT 6420, Design and Analysis of Experiments, 3.0 (G) STAT 8620, Categorical Data Analysis and Generalized Linear Models, 3.0 (G) **Summer** STAT 8000, Introductory Statistics Collaboration, 3.0 (G)	Ph.D. in Statistics, University of California, Berkeley B.S. in Applied Mathematics, Massachusetts Institute of Technology	3-6 credit hours/semester	**Ph.D. Thesis:** A Statistical Analysis and Projection of the Impact of Divorce on American Kinship Structures
Paul Schliekelman	Associate Professor	**Fall** STAT 8060, Statistical Computing I, 3.0 (G) STAT 8330, Advanced Statistical Applications and Computing, 3.0 (G)	Ph.D. in Biomathematics, North Carolina State University Master of Biomathematics, North Carolina State University B.S. in Physics, Iowa State University	3-6 credit hours/semester	**Ph.D. Thesis:** Assessing New Methods for Autocidal Control

John Miller	Professor (Graduate Coordinator)	**Spring** CSCI 4360/6360, Data Science II, 4.0 (UT/G); CSCI 7200, Masters Project, 4.0 (G) **Summer** CSCI 4370/6370, Database Management, 4.0 (UT/G) **Fall** CSCI 8370, Adv. Database Systems, 4.0 (G)	Ph.D. Information and Computer Science, Georgia Institute of Technology M.S. Information and Computer Science, Georgia Institute of Technology B.S. Applied Mathematics, Northwestern University	5 credit hours/sem.	**Ph.D. dissertation:** "Dissertation was in Markovian Analysis and Optimization of Database Recovery Protocols"
Shannon Quinn	Assistant Professor	**Fall** CSCI 4360/6360, Data Science II, 4.0 (UT/G) CSCI 4360/6360, Data Science II, 4.0 (UT/G)	Ph.D. Computational Biology, University of Pittsburgh M.S. Computational Biology, Carnegie Mellon University B.S. Computer Science, Georgia Institute of Technology	5 credit hours/sem.	**Ph.D. dissertation:** "Distributed Spectral Graph Methods for Analyzing Large-Scale Unstructured Biomedical Data" **M.S. thesis:** "Waldo: A Framework for Inferring Protein Location as a Function of Condition"

Lakshmish Ramaswamy	Professor	**Spring** CSCI 4780/6780, Distributed Computing Systems, 4.0 (UT/G) CSCI 6375, 4.0 (G) **Fall** CSCI 8790, Adv. Topics in Data Intensive Computing, 4.0 (G)	Ph.D. Computer Science, Georgia Institute of Technology M.S. Computer Science and Automation, Indian Institute of Science, India B.E. Computer Science and Engineering, University of Mysore, India	5 credit hours/sem.	**Ph.D. thesis:** "Towards Efficient Delivery of Dynamic Web Content" **M.S. thesis:** "Wavelets for Volume Graphics"

54. Explain your plan for <u>new</u> faculty and staff for the program:

a. **How many new faculty will be needed for this program over the next four years**? Enter #0

Explanation: No new faculty is needed unless there is a significant enrollment increase.

55. How many new staff will be needed for this program over the next four years?
Enter # 0

a. Discuss why new or additional staff resources are needed. Consider staff needs, support services (i.e. advisement, faculty support, etc.)

No additional staff will be necessary unless there is a large increase of the program.

F3. Facilities – complete the questions below:

56. Where will the program be offered?^ Mark all that apply

☒ Main campus
☐ Satellite campus: Specify Here
☐ Other: Specify Here
☐ 100% Online

57. Will new or renovated facilities or space be needed for this program over the next four years?

☒ No
☐ Yes (*If yes, complete the table below, inserting additional rows as needed).*

Capital Costs for Needed Facilities and Space

Facility/Space Name	Gross Square Footage	Start Up Costs	Ongoing Costs	Est. Occupancy Date	Funding Source
New Construction					
Renovations and Infrastructure*					
Purchases: Land, Buildings etc.					
Lease space					
TOTAL Cost		**$0**	**$0**		

*Include the name of the building or location being impacted and what will need to be done. Infrastructure includes new systems such as: water, electrical, IT networks, HVAC etc.

58. Discuss the impact of construction or renovation on existing campus activities and how disruptions will be mitigated. Explain how existing programs benefit from new facilities and/or space(s) and changes to existing space.

N/A

59. Will any existing programs be negatively impacted (e.g. lose classroom or office space) by proposed facility changes? If so, discuss how the impacts of these changes will be mitigated.^

No

60. Are any of these new facilities or major renovations listed in the table above (Question 57) NOT included in the institution-level facilities master plan?

N/A

29. 61. Will any of the following types of space be required: instructional, fine arts, meeting, study, or dedicated office?

☒ No (Move to Question 63).
☐ Yes (If yes, complete question 62. Insert additional rows as needed).

30. 62. Complete the table below. Specify if these spaces are existing or new in the table below.^ If new, provide the semester and year of completion.

Space	New Space (ASF)	Use Existing Space (as is) (ASF)	Use Existing Space (Renovated) (ASF)	Semester/ Year of Occupancy
Dry Labs (STEM related)				
Wet Labs (STEM related)				
Dedicated Offices				
Fine Arts Spaces[1]				
Classrooms				
Meeting Rooms				
Student Study Space				
Other (Specify)				

[1]Fine arts spaces can include theatres, recital halls, visual arts studios, performing arts centers, recording studios, design labs, and other performance venues.

63. Are there facility needs related to accreditation?^ Are there any accreditation standards or guidelines that will impact facilities/space needs now or in the future? If so, please describe the projected impact.

No

F4. Technology

64. Identify any major equipment or technology integral to program start-up and operations. List any equipment or assets over $5,000 (cumulative per asset) needed to start-up and run the program (insert rows as needed)

	Technology and Equipment	Start-up Costs	On-going Costs	Est. Start Date of Operations/Use
1				
2				

3				
4				
5				
6				
Total Technology Costs		**0**	**0**	

G. RISKS AND ASSUMPTIONS

65. In the table below, list any risks to the program's implementation over the next four years. For each risk, identify the severity (low, medium, high), probability of occurrence (low, medium, high), and the institution's mitigation strategy for each risk. Insert additional rows as needed. (e.g. Are faculty available for the cost and time frame).

Risk	Severity	Probability	Risk Mitigation Strategy

66. List any assumptions being made for this program to launch and be successful (e.g. SACSCOC accreditation request is approved, etc.).

H. INSTITUTION APPROVAL

Have you completed and submitted the signature page?