New Academic Degree Program Request to Establish

Institution: University of North Carolina at Charlotte

Degree Program Title (e.g., M.A. in Biology): B.S. in Sports Analytics

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

Review	Name	Title
Faculty Senate Chair (Or appropriate body)	Xiaoxia Newton	Faculty President
Graduate Council (If applicable)		
Graduate/Undergraduate Dean (If applicable)		
Academic College/School Dean	Catrine Tudor-Locke, Bojan Cukic, Robert Keynton, John Smail, Dolly King, Bernadette Donovan-Merkert	Dean College of Health and Human Services, Dean College of Computing and Informatics, Dean William State Lee College of Engineering, Interim Dean College of Humanities & Earth and Social Sciences, Interim Dean Belk College of Business, Interim Dean College of Science
Department Head/Chair	Doug Hague, JP Barfield	Executive Director of the School of Data Science, Chair Applied Physiology, Health, and Clinical Sciences
Program Director/Coordinator	John Tobias	Program Director

New Academic Program Process

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

Please provide a succinct, yet thorough response to each section. Obtain signatures from the Chancellor, Provost, and Chief Financial Officer, and submit the proposal via the PREP system to the UNC System Vice

President for Academic Program, Faculty, and Research, for review and approval by the UNC System Office. If the Request to Establish is approved by UNC System Office staff, it will be submitted the proposal for review and approval by the UNC Board of Governors.

UNC Institution Name	UNC-CHARLOTTE
Joint Degree Program (Yes or No)? If so, list partner.	No
Degree Program Title (e.g., M.A. in Biology)	B.S. in Sports Analytics
CIP Code and CIP Title (May be found at National Center for Education Statistics)	30.7099 Data Science, Other
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	No
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	Campus
Will this program be offered through an Online Program Manager (OPM)? If yes, list the OPM.	No
If requesting site-based delivery, indicate address(es), city, county, state, and maximum % offered at site.	N/A
Proposed Term to Enroll First Students (e.g., Fall 2023)	Fall 2025

Do the following sections of your previously submitted and approved Request for Preliminary Authorization to Develop a New Academic Degree Program document require any change or updated information? If yes, note the items and explain.

Category	**Yes or No**	**Explanation (if applicable)**
SACSCOC Liaison Statement	No	
Review Status (campus bodies that reviewed and commented on Letter		

of Intent)		
Program Summary	No	
Student Demand	No	
Access and Affordability	No	
Societal and Labor Market Demand	No	
Doctoral Specific Questions	N/A	

I. Program Summary

a. Describe the proposed program, including the overall rationale for its development. Include a discussion of how this program supports the specific mission of the institution and of the broader UNC System. Why is this program a necessary addition for the institution?

This proposal will extend a recently launched Certificate in Sports Analytics to a full Bachelor of Science degree. This supports UNC Charlotte's mission to "Shape What's Next" through launching an innovative and in-demand STEM degree. In addition, the proposed new program directly supports the UNC System goal of graduating more students with critical workforce credentials. This degree is attractive to a body of students that are not normally attracted to a STEM based degree. Initial results have shown increased diversity in our certificate program over industry practitioners, and one of our faculty members has been a leading advocate for diversity in this field. Our initial collaborations with local professional sports organizations including the Carolina Panthers, Charlotte FC (Major League Soccer), and Charlotte Hornets, are driving further community engagement and support of UNC Charlotte through this high-profile field. This program is designed to extend these meaningful collaborations among local and national businesses, sports franchises, and attract students not normally found in STEM fields to a career in Sports Analytics. This program not only broadens the attraction to STEM programs, but also engages a broader and more diverse student body than typical STEM fields. This program takes advantage of UNC Charlotte's location and proximity to the majority professional sports teams in North Carolina (football, basketball, soccer, minor league baseball, minor league hockey, NASCAR) as well as major media companies.

b. What are the key objectives of the program? What are the expected benefits for the student who graduates from the program? What are the expected public benefits (at the local, regional, state, or national level) of this program?

The key objectives of the program are to train sports analytics professionals who are well-versed in topics ranging from machine learning to research methods and the anatomy and physiology of human sports performance. Positions in sports analytics are well paid (~$80k/yr entry-level) and contribute to fan interest in sports. Initial students who have earned the Certificate in Sports Analytics program have obtained positions with professional sports teams including the Phillies, Charlotte FC and Bruins within the last year. To broaden the impact across the country, the extension to more data science and human performance knowledge for the students in this program will further complete the skills being asked for by professional teams. In other words,

while our certificate students compete well for analytics positions, the proposed B.S. will have deeper skills and will be able to meet the data science and human performance knowledge requirements for more positions within the hiring companies' data science teams.

II. Program Planning and Unnecessary Duplication:

a. List all other public and private four-year institutions of higher education in North Carolina currently operating programs similar to the proposed new degree program, including their mode of delivery (use the 4-digit CIP as a guide). Show a four-year history of applications, acceptances, enrollments, and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program). If data was not available, mark not available. Programs at UNC institutions may be found on the UNC System website.

N/A there are no B.S. programs in Sports Analytics within North Carolina.

b. Describe what was learned in consultation with other programs regarding their experience with student demand and job placement. Indicate how their experiences influenced your enrollment projections.

The UNC Charlotte B.S. in Sports Analytics will be the first undergraduate degree in Sports Analytics in North Carolina. Thus, there is no experience in projecting student demand and job placement within North Carolina. We have consulted with colleagues at Appalachian State University who offer a certificate in Sports Analytics. They indicated all students are employed in analytics, with specific acknowledgement of one graduate currently working with USA baseball and another with a travel baseball organization. We have consulted with faculty at Syracuse University who have an established Sports Analytics B.S. program.

c. Identify opportunities for collaboration with institutions offering related degrees and discuss what steps have been or will be taken to actively pursue those opportunities where appropriate and advantageous.

The first institution in the U.S. to offer an undergraduate Sports Analytics degree was Syracuse University, who graduated their first class in 2021. According to Francesco Riverso (Sports Analytics Program Director/Syracuse University), they have had 100% placement with all of their graduates either obtaining jobs in the sports analytics industry or choosing to attend graduate school. Some of the positions that their graduates have secured include player talent evaluation, sales, scouting, marketing, sponsorship, ticketing, finance, and accounting for professional, collegiate, and amateur sport organizations.

The University of Akron also recently launched their sports analytics program in Fall 2022. After meeting with their program director (Dr. Matthew Juravich), he stated that 8 students declared sports analytics as a major. Their goal was to have between 6-10 students declare for their first full year. However, they have not yet secured partnerships with any of the 3 professions sports franchises (Browns, Cavaliers, Guardians) in the Cleveland/Akron area. UNC Charlotte on the other hand, had 42 students declare the Sports Analytics Certificate within the first 6 months of launching the program, and we have already established partnerships with all 3 major league sports teams in the city.

d. Present documentation that the establishment of this program would not create unnecessary program duplication. In cases where other UNC institutions provided similar online, site-based distance education, or off-campus programs, directly address how the proposed program meets unmet need.

N/A. There are no similar B.S. programs in the UNC system.

e. Admission. List the following:
   i. Admissions requirements for proposed programs (indicate minimum requirements and general requirements).

   All students must meet UNC Charlotte requirements for admission for undergraduate students. In addition, students must have a 2.0 cumulative GPA unless it is the student's first semester at UNC Charlotte and a cumulative GPA has not been established. General advising for prospective majors and newly declared will introduce students to the curriculum and degree requirements so as not to delay graduation resulting in high cost to the student. UNC Charlotte advises that all students should declare and be accepted into a major or a pre-professional program by the time they have earned 60 semester hours of credit; transfer students entering with more than 60 credit hours should make that declaration upon enrollment or during their first semester of attendance.

   ii. Documents to be submitted for admission (listing)

   Applications for admission are reviewed when all required credentials are received. The review focuses on the academic history of the applicant and considers all relevant factors. The intent of the University is to offer admission to applicants whose credentials indicate a strong likelihood for success in their selected curricula. It is not always possible to accommodate all the applicants who meet the minimum criteria, and some majors require above-average academic profiles for admission. The Admissions Advisory Committee may make exceptions to the minimum criteria for applicants who are judged to have potential or talent not revealed by test scores and academic performance. Sports Analytics will not initially require above-average academic profiles to be admitted the major.

   Freshmen Criteria:
   The Office of Undergraduate Admissions considers applicants whose minimum qualifications include high school graduation or a General Education Diploma (GED). For international applicants, guidelines provided by the American Association of Collegiate Registrars and Admissions Officers (AACRAO) and NAFSA: Association of International Educators and World Evaluation Services are used to determine if an applicant has met requirements for high school graduation in their country.

   Applicants for freshman admission must submit the following to complete their application.
   1. Online application for admission.
   2. $75 application fee or approved fee waiver.
   3. Official high school transcript reflecting completed coursework in grades 9-11. Final transcripts reflecting senior grades and graduation date must be provided prior to enrollment.

4. Official SAT or ACT scores.
5. Internationally educated students must have their foreign credentials translated and evaluated by an approved, accredited credential evaluation service.

Applicants for freshman admission are evaluated for admission with primary consideration given to the following:

High School Performance

1. Academic courses in grades 9-11. Applicants must have the minimum course requirements as stated by the UNC System. These courses include 4 units of English, 4 units of Math (including an advanced math), 3 units of Science, 2 units of History/Social Studies, and 2 units of the same foreign language.
2. Grade point average. The middle 50% of the freshman class has a GPA between 3.7 to 4.3; average GPA is 4.1.
3. Senior year course selection. In addition to English and math, we encourage students to take science and foreign languages in their senior year. We expect to see a solid academic schedule.

SAT or ACT Scores

1. The middle 50% of the freshman class have SAT scores ranging from 1540-1770 and/or ACT scores ranging from 22-27.

Transfer Criteria

A minimum of 24 semester hours of college transferable coursework is required for transfer admission. Transfer admission is based on grade point average achieved and specific courses completed. Transfer admission policies are clearly presented on the Undergraduate Admissions website and in the transfer recruitment brochure. In addition, transfer requirements are presented at community college visits, transfer advising sessions at Open House, and in daily information sessions in the Admissions office. In addition to the application and $60 fee, official transcripts from every college attended, and an official high school transcript, the following requirements apply:

1. Transfer students under the age of 21 are required to have completed the Minimum Course Requirements in high school: 4 units of English; 4 units of Math (including an advanced math); 3 units of Science; 2 units of History/Social Studies; and 2 units of the same foreign language.
2. Applicants must present an overall 2.0 grade point average according to calculations performed by the Undergraduate Admission office.
3. Students who do not meet freshman admission requirements must present a minimum of 24 semester hours (or 36 quarterly hours) of transfer credits.
4. Internationally-educated students must have their foreign credentials translated and evaluated by an accredited credential evaluation service. Transfer applicants must have a “course by course report” completed by the service, and they must present the equivalent of a high school diploma in addition to college-transferable coursework.
5. Applicants must be in good standing at and eligible to return to the last institution attended.

Transfers from within UNC Charlotte:

1. Cumulative GPA of 2.0.

f. Degree requirements. List the following:
   i. Total hours required. State requirements for Major, Minor, General Education, etc.

The proposed B.S. in Sports Analytics will require students to complete general education requirements and complete 59 credit hours of study within the major. There will be no pre- requisites beyond those courses required for general education. The program will not seek specialized accreditation; accordingly, barriers to degree progression that might otherwise be associated with such programs will be avoided.

Proposed Curriculum:
General Education requirements (31-32 credit hours)
Major courses (57-59 credit hours, 6 of which meet Gen Ed Requirements)
Free Electives (29-32 credit hours)
TOTAL DEGREE REQUIREMENTS: 120 credit hours

   ii. Other requirements (e.g., residence, comprehensive exams, thesis, dissertation, clinical or field experience, "second major," etc.).

N/A

g. Enrollment. Estimate the total number of students that would be enrolled in the program during the first year of operation and in each delivery mode (campus, online, site, etc.)

	Campus	Online	Site	Full-Time	Part-Time
Year 1	75	N/A	N/A	75	N/A
Year 3	214	N/A	N/A	214	N/A
Year 5	266	N/A	N/A	266	N/A

Assumptions: Year 1 enrollment will be on-campus students switching their major to Sports Analytics. Starting Year 2 we will admit new freshmen and by Year 3 transfer students. If we assume 85% retention rate of students each year, the long-term size approximately 300 students with 75 graduations each year.

h. For graduate programs only, please also answer the following:

Grades required	
Amount of transfer credit accepted	
Language and/or research	

requirements	
Any time limits for completion	

i. For all programs, provide a degree plan showing the sequence of courses to be taken each year. List courses by title and number and indicate those that are required. Include an explanation of numbering system. Indicate new courses proposed. A possible format is offered below as an example. If your institution uses a different format that provides the required information, it may be submitted instead.

The year-by-year curriculum is in the table on pages 8-10. Briefly, students will complete courses in the areas of Sports Analytics, Math/Statistics, Programming/Algorithms, and Exercise Science. Six credit hours of Math/Statistics meet university general education requirements.

Core Sports Analytics (12 credit hours + 6cr elective):

- DTSC 1110 Sports Analytics
- DTSC 3400 Data Science Practicum
- SPOA 4110 Human Performance Technology
- SPOA 4120 Modeling of Human Performance

Sports Analytics Electives: pick two (6 credit hours)

- DTSC 2110 Sports Business Analytics
- SPOA 2130 Introduction to Baseball Analytics
- SPOA 4210 Advanced Baseball Analytics
  More to be developed over time.

Math/Statistics (15 credit hours):

- MATH 1120 or 1241 Calculus or Calculus I
- STAT 1220/1221/1222 Elements of Statistics I (BUSN), Elements of Statistics I, or Introduction to Statistics
- STAT 2223 Elements of Statistics II
- MATH 2164 Matrices and Linear Algebra
- STAT 3160 Applied Multivariate Analysis

Programming/Algorithms (14 credit hours)

- ITSC 1212 Intro to Computer Science I
- ITSC 1213 Intro to Computer Science II
- ITSC 2214 Data Structures and Algorithms
- ITSC 3160 Database Design and Implementation

Exercise Science (12 credit hours)

- SPOA 1120 Factors of Human Performance
- SPOA 2120 Applied Kinesiology of Human Performance
- SPOA 3110 Physiology of Human Performance
- EXER 4115 Research Methods in Applied Physiology, Health, and Clinical Sciences

Year 1	Course No.	Course Title	Required (Y/N)	New (Y/N)	Brief Description (If New Course)
	DTSC 1110	Sports Analytics	Y	N	
	SPOA 1120	Factors of Human Performance	Y	Y	This introductory course will introduce students to a broad range of topics that need to be considered in human performance, including, but not limited to, nutrition and sports psychology.
	MATH 1120 or MATH 1241	Calculus, or Calculus I	Y	N	
	STAT 1220 or STAT 1221 or STAT 1222	Elements of Stats I (BUSN), Elements of Statistics I, or Introduction to Statistics	Y	N	
	ITSC 1212	Intro to Computer Science I	Y	N	
	ITSC 1213	Intro to Computer Science II	Y	N	
Year 2	Course No.	Course Title	Required (Y/N)	New (Y/N)	Brief Description (If New Course)
elective	DTSC 2110	Sports Business Analytics	Y	N	
	SPOA 2120	Applied Kinesiology for Human Performance	Y	Y	In this course students will learn foundational musculoskeletal anatomy with an emphasis on function of the muscles in human performance testing and assessment.
	MATH 2164	Matrices and Linear Algebra	Y	N	
	STAT 2223	Elements of Statistics II	Y	N	

	ITSC 2214	Data Structures and Algorithms	Y	N	
Year 3	Course No.	Course Title	Required (Y/N)	New (Y/N)	Brief Description (If New Course)
	SPOA 3110	Physiology of Human Performance	Y	Y	An overview of the physiology required of peak human performance including nervous and muscular function.
	STAT 3160	Applied Multivariate Analysis	Y	N	
	ITSC 3160	Database Design and Implementation	Y	N	
	DTSC 3400	Data Science Practicum	Y	N	
Year 4	Course No.	Course Title	Required (Y/N)	New (Y/N)	Brief Description (If New Course)
	SPOA 4110	Human Performance Technology	Y	Y	In this course students will learn about the variety of wearable and related technology in existence and how to use the data to improve human performance.
	SPOA 4120	Modeling of Human Performance	Y	Y	In this course students will develop models and analytic methods of machine learning to explore a data science approach to human performance problems.
elective	SPOA 4210	Advanced Baseball Analytics	Y	Y	This course has been offered as a special topics class multiple times and will be submitted as a permanent class exploring real-world applications of baseball data analysis.
	EXER 4115	Research Methods in Applied Physiology, Health, and Clinical Sciences	Y	N	

III. Faculty

a. (For undergraduate and master's programs) List the names, ranks and home department of faculty members who will be directly involved in the proposed program. The official roster forms approved by SACSCOC may be submitted. For master's programs, state or attach the criteria that faculty must meet in order to be eligible to teach graduate level courses at your institution.

   See Appendix C

b. (For doctoral programs) List the names, ranks, and home department of each faculty member who will be directly involved in the proposed program. The official roster forms approved by SACSCOC may be submitted. Provide complete information on each faculty member's education, teaching and research experience, research funding, publications, and experience directing student research including the number of theses and dissertations directed.

   N/A

c. Estimate the need for new faculty for the proposed program over the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs, and how the current teaching responsibilities of those faculty will be covered.

   We are proposing hiring one tenure track faculty the first year and an additional 2 tenure track and four non tenure track faculty by year 4. We are able to start with a lower number due to the reallocation of current resources (and courses) assigned to our current Lecturer in Sports Analytics and other courses within the Sports Analytics Certificate. The tenure track positions will have research focuses within the data science of sports (wearables, computer vision of sports performance, etc.). The non-tenure track will be allocated between the Departments of Mathematic and Statistics, Computer Science, Applied Physiology, Health and Clinical Science (APHCS), and Data Science to teach additional sections of the math, statistics, and computer programming courses required within this curriculum. Additional sections of the introductory sports analytics courses will also be taught (over those currently taught for the certificate). We expect to strengthen each department we are adding faculty to such that they have a larger faculty and more flexibility in scheduling courses.

d. Explain how the program will affect faculty activity, including course load, public service activity, and scholarly research.

   As we are adding faculty, this program will not change faculty activity significantly. Course loads, public service activity, and scholarly research requirements shall be identical to the home department requirements with the exception that the faculty are required to attend SDS faculty meetings. This is defined in each faculty's MOU that they sign to be an affiliated or joint faculty member of SDS. The breadth of research in this field will be significantly extended through the tenure track hiring process and is expected to increase our engagement with the local and national sports professional and amateur teams.

IV. Delivery Considerations. Provide assurances of the following (not to exceed 250 words per lettered item):

a. Access (online, site-based distance education, and off-campus programs). Students have access to academic support services comparable to services provided to on-campus students and appropriate to support the program, including admissions, financial aid, academic advising, delivery of course materials, and placement and counseling.

Since the majority of this program will be offered face-to-face on the main campus of UNC Charlotte, students will have access to resources that are traditionally made available to all undergraduate students. This support includes an academic advisor to assist with degree plan guidance; monitoring of academic standing; career planning; consultation on institutional policies, procedures, and requirements. Students will have regular access to faculty for face-to-face and/or virtual office hours and may access additional campus resources (e.g., Disability Services, Multicultural Academic Services, Financial Aid, Library, Career Center, the University Center for Academic Excellence, and Writing Resources Center) as needed. These resources offer a broad range of services that include, but are not limited to: Disability Services ensures access to academic programs and campus facilities by providing verification of medical documentation, academic accommodations, counseling, testing, note-taking, and scholarships. Office of Academic Diversity and Inclusion is committed to assisting traditionally underrepresented populations in the awareness and availability of academic support services. University Center for Academic Excellence offers activities such as tutoring, supplemental instruction, academic success workshops, peer mentoring, academic success seminars, a learning lab, and individual consultations, all to support the effort to retain undergraduate students. Writing Resources Center offers one-to-one writing instruction in writing across the disciplines from first-year to graduate, presentations, and workshops. Consultations, on-line services, and a library of writing-related instructional material are also available.

b. Curriculum delivery (online and site-based distance education only). The distance education technology to be used is appropriate to the nature and objectives of the program. The content, methods and technology for each online course provide for adequate interaction between instructor and students and among students. What is the impact of online delivery on student access to the program, and what strategies are in place to support students who have internet limitations?

N/A- this is an on-campus program

c. Faculty development (online and site-based distance education only). Faculty engaged in program delivery receive training appropriate to the distance education technologies and techniques used.

N/A- this is an on-campus program

d. Security (online and site-based distance education only). The institution authenticates and verifies the identity of students and their work to assure academic honesty/integrity. The institution assures the security of personal/private information of students enrolled in online courses.

N/A- this is an on-campus program

V. Library

a. Provide a statement as to the adequacy of present library holdings for the proposed program to support the instructional and research needs of this program (this should be developed in consultation with the University Librarian).

With the recent addition of the certificate program in Sports Analytics, a materials budget has been provided to the School of Data Science as well as continued funding from the Business, Health, and Computing & Informatics budgets due to the multidisciplinary nature of the Sports Analytics program. Based on an analysis of the Data Science/Research Data Librarian, Reese Manceaux, the current holdings are satisfactory to support research for this program and its faculty and students.

Students have access to hundreds of thousands of physical books and e-books from Springer, Wiley, Elsevier, Cambridge, Business Expert Press Digital Library and other publishers. Also available are the latest scholarly articles from databases such as Web of Science, ScienceDirect, Business Source Complete, and our sports databases-SPORTDiscus and Sports Medicine and Education Index. We also have access to a large collection of educational streaming videos.

b. If applicable, state how the library will be improved to meet new program requirements for the next four years. The explanation should discuss the need for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?

The library offers responsive support to research needs of the School of Data Science and to all existing programs in which the School participates. Faculty can contact the data science librarian directly for one-time purchase materials that are needed. For ongoing subscriptions needed, the librarian will work with faculty affiliated with the School to prioritize and make requests of the library and university to support new research materials needed to propel the work forward.

There is a database that may be helpful to this major - SBRnet (Sports Market Analytics). J. Murrey Atkins Library would need to acquire subscriptions to research databases like these and any others that the library currently does not provide access. This will require a permanent or recurring increase to the library budget, since the library cannot acquire and retain access to additional subscription resources with a flat or decreased library budget.

c. Discuss the use of other institutional libraries (outside of your institution) in delivery of the program.

The library has a highly-rated Interlibrary Loan (ILL) Department. Faculty, students, and staff can make requests through an easy-to-use web interface, with the capability of auto-filling from any of our databases. Book chapters, conference proceedings, and journal articles are scanned and delivered electronically from other institutions as PDF files within 24-48 hours. Print books are mailed and delivered within 5 business days. Any materials that the library is unable to borrow from other libraries or requested multiple times will be purchased, if available for sale. We, along

with other universities in the state are also a site for NC LIVE, a statewide electronic resources consortium that makes digital resources accessible to North Carolina residents.

d. For doctoral programs, provide a systematic needs assessment of the current holdings to meet the needs of the program.

Not applicable

VI. Facilities and Equipment

a. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, in year one, five, and ten of the program's operation.

Facilities are available for the Sports Analytics program staff in the Colvard Building and in Belk Gym at UNC Charlotte. All faculty have private offices, conference rooms, and workspaces through the College of Computing and Informatics, College of Liberal Arts and Sciences, College of Health and Human Services, and Belk College of Business. Depending on growth, additional faculty offices may be required.

i. Will any new square footage be required at any point in the first ten years of the program's operation? If so, please provide an overview of requirements, timeline, projected costs, and projected funding sources.

Space for new faculty and research labs is being accounted for in a current renovation and expansion of Burson building on UNC Charlotte campus and part of our expansion of the interdisciplinary collaboration between the School of Data Science, the College of Engineering, and the College of Computing. This expansion has two foci, one of which is the expansion of interdisciplinary research. The expansion portion of this plan will be focused on interdisciplinary research and will complete 10,800 net square feet of space with an additional 30,000 square feet of shell built for future expansion ($30M). The funding has already been allocated to UNC Charlotte for the Burson expansion through the North Carolina State Budgeting process. Tentative groundbreaking for the expansion is in 2024 with expected completion in 2027.

ii. Will any existing square footage require repair, renovation, or retrofit? If so, please provide an overview of requirements, timeline, projected costs, and projected funding sources.

In addition to the Burson research expansion, the current Burson building is in the initial design stage for refurbishment. This space will house the expansion of the School of Data Science and our classroom facilities and undergraduate programs in collaboration with programs from the College of Computing and Informatics and the College of Engineering. Finally, Colvard Building, where SDS is currently located, has $4.5M in planning funds and a $45M budget for refurbishment within the next 10 years. Any further growth needs of the programs within the School of Data Science will be considered within this refurbishment. Funding for the Burson refurbishment has already been allocated through the State budget ($25.9M) with refurbishment timing expected to be aligned with the expansion. Planning funding for Colvard is expected in the second year of the current

state budget (FY 25). Further allocations are expected in future budgets with completion in the 7–10-year window.

b. Describe the effect of this new program on existing technology, information technology, and services and indicate whether they will be adequate, in year one, five, and ten of the program's operation.

Program faculty are also affiliated with the university high performance computing (HPC) managed by OneIT and Biodynamics Research Laboratory (BRL) in the College of Health and Human Services.

HPC:
Our Research Computing clusters are primarily Intel Xeon-based Dell servers, but we do have some AMD EPYC based compute nodes. We have a mix of models and generations, but our primary compute nodes are Intel Xeon-based Poweredge R630s / R640s and AMD EPYC-based Poweredge R6525. We offer compute nodes with different compute capabilities, so if you need large memory nodes or GPU nodes, we've got you covered. Our GPU nodes provide a mix of NVIDIA cards: GTX-1080ti, Titan V, and Titan RTX, as well as Tesla V100S and A100 Tensor Core GPUs. Our large memory nodes range from 1.5TB to 4TB of RAM in a single system.

We have a high-speed Mellanox 100Gb/s EDR Infiniband fabric in one data center and a 200Gb/s HDR Infiniband fabric in our other data center. The fabrics are connected via dual redundant Mellanox Technologies MetroX-2 Long-Haul IB switches. Our Lustre Filesystem is served out over our IB fabric to provide incredible throughput performance for our high I/O compute jobs. For a more detailed overview of the types of systems that make up each cluster, please check out our Research Clusters and Educational Cluster pages. Research Computing provides an extensive set of applications and codes for use by our researchers on the cluster.

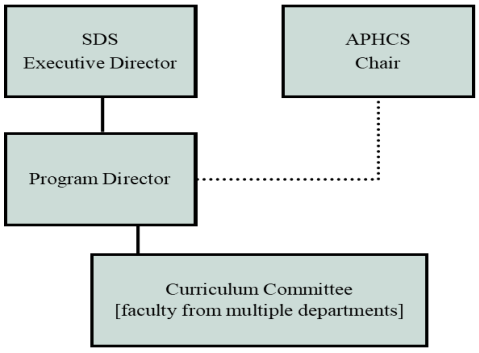
BRL
The BRL is a state-of-the-art research space in Belk Gymnasium. This laboratory consists of a large open space and 3 smaller rooms with doors to ensure privacy during data collection and intervention performance. This laboratory space includes one Biodex System III Pro isokinetic dynamometer and associated attachments for strength assessment; a Digitimer DS7AH, Magstim Rapid Transcranial magnetic stimulator, and 40 channel NuAmps electroencephalography system for neurophysiological assessments; a 10 camera Vicon Vantage V5 high speed motion capture system; 2 Bertec force platforms and 1 AMTI force platform for biomechanical and balance assessments; one GE logic diagnostic ultrasound device; one pedar pressure insole system for additional gait analysis; and an 8 channel Delsys Trigno wireless electromyography system. Additional equipment includes one treadmill and one stationary bicycle for aerobic exercise as well as rehabilitation equipment including foam balance pads and elastic resistance bands. The laboratory has numerous computer workstations loaded with software including Matlab, SPSS, Vicon Nexus, Visual 3D, CURRY 7, Balance Clinic, EMG works, and the full Microsoft Office Professional suite.

Other existing technology and services will be adequate to support at the commencement of the program and expansion will be commensurate with the growth of the program. Non-HPC data storage, connectivity and educational compute infrastructure will continuously evolve and is

part of our normal operation within the School of Data Science and UNC Charlotte's OneIT organization. Wearable technology and the ability to measure human performance is also continually evolving. Our research will keep our faculty up to date and enable them to bring the latest technology into the classroom.

VII. Administration

a. Describe how the proposed program will be administered, giving the responsibilities of each department, division, school, or college. Explain any inter-departmental or inter-unit administrative plans. Include an organizational chart showing the "location" of the proposed new program.



The APHCS Chair reports to the Dean of the College of Health and Human Services, who reports to the Provost, who reports to the Chancellor of UNC Charlotte. The School of Data Science is a transdisciplinary program that reports to a Board of Directors made up of the Deans of 6 Colleges and the Provost. The colleges are the College of Health and Human Services, the College of Computing and Informatics, The William States Lee College of Engineering, the Belk College of Business, the College of Humanities, Earth, and Social Sciences, and the College of Sciences.

b. For joint programs only, include documentation that, at minimum, the fundamental elements of the following institutional processes have been agreed to by the partners:
   i. Admission process
   ii. Registration and enrollment process for students
   iii. Committee process for graduate students
   iv. Plan for charging and distributing tuition and fees
   v. Management of transcripts and permanent records
   vi. Participation in graduation
   vii. Design of diploma

N/A

VIII. Additional Program Support

a. Will additional administrative staff, new master's program graduate student assistantships, etc. be required that were not previously identified in the Request for Preliminary Authorization? If

so, please describe each item, state the estimated new dollars required at steady state after four years, and state the source of the new funding and resources required.

We have no changes from the Request for Preliminary Authorization. To summarize what was in the prior document, we have planned for 4 staff members and 12 teaching assistantship positions to support the courses and programs by year 5. These positions are hired over time and will be directly aligned with the student growth in the program.

IX. Accreditation and Licensure

a. Where appropriate, describe how all licensure or professional accreditation standards will be met, including required practica, internships, and supervised clinical experiences.

N/A- This program does not lead to licensure and is not accredited.

b. Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation.

N/A

c. If the new degree program meets the SACSCOC definition for a substantive change, what campus actions need to be completed by what date in order to ensure that the substantive change is reported to SACSCOC on time?

N/A. Current SACSCOC substantive change policies will not require formal approval for this program; any necessary notifications only need to be submitted prior to students officially enrolling in the major.

d. If recipients of the proposed degree will require licensure to practice, explain how program curricula and title are aligned with requirements to "sit" for the licensure exam. List what state(s) the institution has determined the program meets professional licensure requirements for and how that information will be communicated to students and prospective students.

N/A

X. Evaluation Plans

a. What student learning outcomes will be met by the proposed program and how will student proficiency be measured? These items may be updated as necessary to meet student and program needs.

See Attachment D

b. The plan and schedule to evaluate the proposed new degree program prior to the completion of its fourth year of operation (to include types of measurement, frequency, and scope of program review).

The new degree program will be evaluated annually, with new class SLOs evaluated annually for each of the first 4 years the courses are taught. SLOs will be modified and altered as new learnings or issues are identified.

XI. Supporting Fields

a. Discuss the number and quality of lower-level and cognate programs in operation at the institution for supporting the proposed degree program.

As an interdisciplinary program, we will be supported in current coursework by the Computer Science, Software and Information Systems, and Mathematics and Statistics Departments. In addition, this program will be supported by current and new coursework in the Applied Physiology, Health, and Clinical Sciences Department. Coursework in our current Certificate in Sports Analytics will also be utilized as part of the degree requirements.

b. Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

The College of Computing and Informatics, the College of Health and Human Services, the College of Engineering, the College of Business, the College of Humanities & Earth and Social Sciences, and the College of Science will be providing valuable support through joint and affiliate faculty appointments. Our experience in running the Certificate in Sports Analytics has demonstrated that select faculty from these colleges may provide new or modified courses in their area of expertise that they modify to a particular sport of interest. The program will utilize proprietary and public data sets within the classroom.

XII. Costs, Funding, and Budget

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

a. Complete and attach the *UNC System Academic Program Planning Financial Worksheet* showing all costs required and revenues generated for each of the first five years of the program. Provide a budget narrative for each year addressing the following:
    i. UNC Academic Program Costs
    Faculty costs include all faculty assigned to the proposed program, including faculty serving as program directors, coordinators, department chairs, etc., funded in the 101 instructional budget code. If an existing faculty member is reassigned to the program, the salary is reflected as a reallocated cost. New faculty salaries need to be competitive for the discipline, and figures should include all applicable fringe (e.g., retirement, medical). If the proposed program will hire new faculty, it is a new cost.

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

    EHRA Non-Faculty positions include non-instructional academic support costs directly

associated with running the program, including amounts associated with the Dean's office, research support, etc. This should include salaries and all applicable fringe.

SHRA Non-Faculty positions includes all positions specific costs associated with the new program. This includes the additional staff needed to organize applications, prepare for the proposed program, and for general administration of the proposed program. New staff or purchases of new equipment should be adequate to support the stated goals and enrollments for the proposed program. Other program costs identified in the proposal should be realistic.

Year 1: Total costs $889k. Roughly 54% of the total costs are reallocations from current programs where the program can add seats to currently taught courses including courses from our Sports Analytics Certificate. New costs come from 1 new tenure track faculty. New costs also support one new graduate TA, one EHRA staff for operations, and other misc support. New tuition revenues of $549k would offset new costs of $412k.

Year 2: Total costs $1.7M. 37% of the total costs continue to be reallocations from current programs. Incremental costs from Year 1 support 1 new tenure track and 2 new additional non-tenure track faculty to teach new courses in the program and add additional capacity to core coursework in statistics and computer programming as well as additional TA support. Total new revenues of $1.6M easily offset the total new costs of $1.0M.

Year 3: Total costs $2.3M. Reallocated costs drop to 33% of the costs in Year 3 as new courses and sections require new faculty to teach. Incremental new costs from Year 2 support one new tenure track faculty, one new non-tenure track, and four new additional graduate assistantships. Total new revenues of $2.8M easily offset the total new costs of $1.5M.

Year 4: Total costs $2.6M. 29% of the total costs in Year 4 are reallocation from current programs; the program costs and revenues are growing at similar rates. Incremental new costs over year 3 support one new non-tenure track faculty and 2 new graduate assistantships and one new EHRA student services to increase capacity. Total new revenues of $3.7M offset the total new costs of $1.8M.

Year 5: Total costs $2.9M. 25% of the total costs in Year 5 are reallocation from current programs the program is reaching steady state. Incremental costs include one additional tenure track faculty, two new graduate assistantships, and one new student's services person. Total new revenues of $4.2M exceed the total new costs of $2.2M.

ii. UNC Academic Program Revenues

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

program to become self-sufficient within five years.

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

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

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

See i) above for consolidated narrative.

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

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

    The budget review process is conducted by the colleges and the Office of Academic Affairs annually. Deans submit funding requests to Academic Affairs based on the prioritized needs of each college. The proposed program is expected to generate new enrollment growth for UNC Charlotte. Increases in enrollment and the corresponding increase in Student Credit Hours (SCH) are reviewed by the Dean's office and examined within the context of the UNC System Office funding formula and University priorities when determining allocation of enrollment growth funds and general tuition and fees. If available, funds will be used to hire additional faculty and staff to support teaching and research.

    Yes, a significant portion of the students in this program are expected to attend UNC Charlotte specifically for this program. This assumption is based upon our experience with the Sports Analytics Certificate and interest from in-state and out of state students that are attending UNC Charlotte due to the Sports Analytics Certificate as well as

interest arising from our summer Sports Analytics High School Camp program that has occurred in Charlotte, New York, and Los Angeles. We expect the pull to be slightly larger due to the program being a full B.S. vs an undergraduate certificate. As there are very few B.S. programs in Sports Analytics in the nation (and even fewer with the human performance focus) we do expect to be able to recruit nationally and attract both in-state and out of state students to this program.

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

Yes, UNC Charlotte is proposing their 2024 request to the State Legislature that, while subject to change, consists of $3M recurring and $6M one-time funds. These funds are required to start this program (faculty/staff hires outlined above, equipment and facilities upgrades for data collection, storage, and processing).

iii. Will the institution require differential tuition supplements or program-specific fees? If so, please elaborate.

1. State the amount of tuition differential or program-specific fees that will be requested.

   We expect to charge a major fee consistent with the College of Computing fees (currently $112.50/semester)

2. Describe specifically how the campus will spend the revenues generated.

   We expect to utilize these fees to support student advising and participation in sports analytics conferences and competitions. In 2023, we sent students to the SaberMetrics Major League Baseball conference as well as the Stats Perform European Football conference where one student won best undergraduate presentation.

3. Describe the anticipated impact of the tuition differential or program-specific fee are expected to impact student access.

   While the $225/yr fee will impact student access, we expect to raise scholarship funds well in excess of this to provide an overall improved access to our program.

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

We will not offer this program if funding is not forthcoming.

XIII. Additional Information. Include any additional information deemed pertinent to the review of this new degree program proposal.

XIV. Attachments. Attach *the UNC System Academic Program Planning Worksheet* as the first attachment following this document, the final approved Request for Preliminary Authorization as the second attachment, followed by any other relevant documents.

Attachment A: UNC System Academic Program Planning Worksheet
Attachment B: Request for Preliminary Authorization
Attachment C: Faculty
Attachment D: Student Learning Objectives for B.S. in Sports Analytics
Attachment E: Supporting Documentation for SLO 1
Attachment F: Supporting Documentation for SLO 2
Attachment G: Supporting Documentation for SLO 3
Attachment H: Supporting Documentation for SLO 4

XV. Signatures. This proposal to establish a new program has been reviewed and approved by the appropriate campus committees and authorities and has my support.

Position Title	Signature	Date
Chancellor		12/12/23
Provost		12/8/23
Chief Financial Officer		12/6/23

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

Position Title	Signature	Date
Chancellor		
Provost		

	Current Program Sources (if applicable)	Rate	Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
1	General Fund Appropriation			$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 646,484
2	NC Promise Appropriation								$ -
3	*Resident Enrollment (FTE)*								
4	Regular Resident Tuition (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	*Nonresident Enrollment (FTE)*								
6	Regular Nonresident Tuition (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
8	Special Fees		$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	External Funding (In-Hand Only)								$ -
10	Other Funding (Identify)								$ -
11	**Total Current Sources**		$ -	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 646,484
	Proposed New Program Sources								
12	*Incremental Resident SCH*			1,710	3,720	4,830	5,640	6,000	
13	Enrollment Funding Appropriation	$ 430	$ -	$ -	$ 367,650	$ 1,167,450	$ 1,838,250	$ 2,251,050	$ 5,624,400
14	*Resident Enrollment (FTE)*			57	124	161	188	200	
15	Regular Resident Tuition (Annual Rate)	$ 3,812	$ -	$ 217,284	$ 472,688	$ 613,732	$ 716,656	$ 762,400	$ 2,782,760
16	NC Promise Appropriation (Resident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
17	*Nonresident Enrollment (FTE)*			18	41	53	62	66	
18	Regular Nonresident Tuition (Annual Rate)	$ 17,936	$ -	$ 322,848	$ 735,376	$ 950,608	$ 1,112,032	$ 1,183,776	$ 4,304,640
19	NC Promise Appropriation (Nonresident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	Special Fees	$ 113	$ -	$ 8,438	$ 18,563	$ 24,075	$ 28,125	$ 29,925	$ 109,125
22	External Funding (In-Hand Only)								$ -
23	Other Funding (Identify)								$ -
24	**Total New Sources**		$ -	$ 548,570	$ 1,594,277	$ 2,755,865	$ 3,695,063	$ 4,227,151	$ 12,820,925
25	**Total Proposed Program Sources**		$ -	$ 677,866	$ 1,723,573	$ 2,885,162	$ 3,824,360	$ 4,356,448	$ 13,467,409

Comments

Assume 12 Sports analytics courses/year and 30 credit hour/yr 30 SCH/student/yr

Special fee aligns with College of Computing current major fee (where School of Data Science is housed)

Mix of tranfer and incoming students over half are transfer (or transfer in from another major). 25% of which are non resident

Assume 85% retetion rate of students.

Quick start on launch of 75 students due to current certificate

long term assumption of just over 100 students enter major/year

12/6/23

		Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
	Current Program Uses (if applicable)							
1	Tenure/Tenure-Track Faculty		$ 330,425	$ 330,425	$ 330,425	$ 330,425	$ 330,425	$ **1,652,125**
2	Non Tenure-Track Faculty		129,297	258,593	387,890	387,890	387,890	$ **1,551,560**
3	Graduate Student Support							$ -
4	EHRA Non-Faculty Positions		17,240	17,240	17,240	17,240	17,240	$ **86,198**
5	Student Support (Scholarships)							$ -
6	Libraries							$ -
7	Supplies and Materials							$ -
8	Travel, Communications, and Fixed Charges							$ -
9	Equipment and Technology							$ -
10	Facility Repair and Renovation							$ -
11	Other (Identify)							$ -
12	**Total Current Uses**	$ -	$ **476,961**	$ **606,258**	$ **735,555**	$ **735,555**	$ **735,555**	$ **3,289,883**
	Proposed New Program Uses							
13	Tenure/Tenure-Track Faculty*		$ 165,212	$ 330,425	$ 495,637	$ 495,637	$ 660,850	$ **2,147,762**
14	Non Tenure-Track Faculty*			258,593	387,890	517,187	517,187	$ **1,680,857**
15	Graduate Student Support*		73,480	146,960	293,920	367,400	440,880	$ **1,322,641**
16	EHRA Non-Faculty Positions*		86,198	172,396	172,396	258,593	344,791	$ **1,034,374**
17	Student Support (Scholarships)							$ -
18	Libraries		10,000	10,000	10,000	10,000	10,000	$ **50,000**
19	Supplies and Materials		5,000	6,000	7,000	8,000	9,000	$ **35,000**
20	Travel, Communications, and Fixed Charges		20,000	25,000	30,000	35,000	40,000	$ **150,000**
21	Equipment and Technology		37,500	82,500	107,000	125,000	133,000	$ **485,000**
22	Facility Repair and Renovation							$ -
23	Facility New Construction or Expansion							$ -
24	Other (Identify)		15,000	15,000	15,000	15,000	15,000	$ **75,000**
25	**Total New Uses**	$ -	$ **412,390**	$ **1,046,874**	$ **1,518,843**	$ **1,831,818**	$ **2,170,708**	$ **6,980,633**
26	**Total Proposed Program Uses**	$ -	$ **889,351**	$ **1,653,132**	$ **2,254,398**	$ **2,567,372**	$ **2,906,263**	$ **10,270,516**

Comments

Program curriculum will leverage current computing, mathematics, and statistics courses (as well as gen ed and other courses) thus new and reallocated FTE tenure track

We currently have one lecturer in Sports Analytics that will be fully teaching within this program (currently in Sports Analytics certificate), add capacity to other areas of university

Over the 5 years, we will need 4 TT and 4 NTT faculty positions to teach the increasing load of SCH

This model meets the 5 courses/instructor with 40-50 students/course

Increasing EHRA Staff of advisors and student support

Grad student support are PhD Teaching assistance for Sports Analytics Courses

E&T will be primarily software and cloud based services for students and faculty

Benefits 143.66%

$	165,212	cost/TT	adding of tenure track in Sports Analytics (APHCS, SDS) , CS, and stat.
$	129,297	cost/NTT	Adding capacity in general education, APHCS, SDS, CS, Stat.
$	36,740	cost of TA	
$	86,198	cost of EHRA non faculty	

12/6/23

THE UNIVERSITY OF NORTH CAROLINA SYSTEM

New Academic Degree Program Request for Preliminary Authorization

Institution UNC CHARLOTTE

Degree Program Title (e.g. M.A. in Biology) B.S. in Sports Analytics

CIP Code 30.7099 Data Science; Other

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

Review	Name	Title
Chief Financial Officer	RICHARD AMON	VICE CHANCELLOR FOR BUSINESS AFFAIRS
Faculty Senate Chair (Or appropriate faculty body)	SUSAN HARDEN	FACULTY PRESIDENT
Graduate Council (If applicable)	n/a	n/a
Graduate/Undergraduate Dean (If applicable)	n/a	n/a
Academic College/School Dean	CATRINE TUDOR-LOCKE, BOJAN CUKIC	DEAN COLLEGE OF HEALTH AND HUMAN SERVICES, INTERIM DEAN COLLEGE OF COMPUTING AND INFORMATICS
Department Head/Chair	DOUG HAGUE, JP BARFIELD	EXECUTIVE DIRECTOR OF THE SCHOOL OF DATA SCIENCE. CHAIR APPLIED PHYSIOLOGY, HEALTH, AND CLINICAL SCIENCES
Program Director/Coordinator	JOHN TOBIAS	PROGRAM DIRECTOR

New Academic Proposal Process

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

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

New Academic Degree Program.

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

UNC Institution Name	UNC CHARLOTTE
Joint Degree Program (Yes or No)? If so, list partner institution.	NO
Degree Program Title (e.g. M.A. in Biology)	B.S. IN SPORTS ANALYTICS
CIP Code and CIP Title (May be found at National Center for Education Statistics)	30.7099 Data Science; Other
Require UNC Teacher Licensure Specialty Area Code (Yes or No). If yes, list suggested UNC Specialty Area Code(s).	NO
Proposed Delivery Mode (campus, online, or site-based distance education). Add maximum % online, if applicable.	CAMPUS
Will this program be offered through an Online Program Manager (OPM; Yes or No)? If so, list the online OPM.	NO
Proposed Term to Enroll First Students (e.g. Fall 2022)	FALL 2024

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

The new program is a significant departure. As a result, a prospectus is required to be submitted and approved six months prior to the intended start date, either in January for a fall start date or July for a spring start date.

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

Include the following in your narrative:

a. How this program supports specific university and UNC System missions.

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

This proposal will extend a recently launched Certificate in Sports Analytics to a full Bachelor of Science degree. This supports UNC Charlotte's mission to "Shape What's Next" through launching an innovative and in-demand STEM degree. In addition, the proposed new program directly supports the UNC System goal of graduating more students with critical workforce credentials. This degree is attractive to a body of students that are not normally attracted to a STEM based degree. Initial results have shown increased diversity in our certificate program over industry practitioners. One of our faculty members has been a leading advocate for diversity in this field[1]. Our initial collaborations with local professional sports organizations including the Carolina Panthers, Charlotte FC (Major League Soccer), Charlotte Hornets, e.g.;is driving further community engagement and support of UNC Charlotte through this high profile field. This program is designed to extend these meaningful collaborations among local and national businesses, sports franchises, and attract students not normally found in STEM fields to a career in Sports Analytics.

The global sports analytics market is expected to achieve a compound annual growth rate of 21.8 percent between 2022 and 2028[2]. While the market size was estimated at 2.2 billion U.S. dollars in 2021, this is forecasted to exceed 10 billion U.S. dollars by 2028.[3] With this size of business, the demand for jobs in the sports analytics industry is projected to be high.

While there are no other schools in the UNC System that offer a degree in Sports Analytics, Appalachian State University (ASU) launched a Sports Analytics Certificate in Fall 2019 from within their Department of Mathematical Sciences. UNC Charlotte launched our Sports Analytics Certificate in Fall 2022. Our program is significantly different from that at ASU due to the partnership between the School of Data Science (SDS) and our Department of Applied Physiology, Health, and Clinical Sciences (APHCS) in the College of Health and Human Services. The blending of data science skills with that of human performance is so far unique in the limited offerings of Sports Analytics programs, which tend to be offered either with a business or economics focus, or purely within sports performance.

Syracuse University was the only school in the country with a BS in Sports Analytics until recently. California Baptist University, the University of Akron, and the University of Charleston (WV) have recently launched a BS in Sports Analytics. A few other universities

[1] https://www.bostonglobe.com/2021/02/19/sports/sports-analytics-diversity-mlb-nba/ https://www.bizjournals.com/charlotte/news/2022/06/24/espn-unc-charlotte-strength-in-numbers.html?utm_source=st&utm_medium=en&utm_campaign=ae&utm_content=ch&ana=e_ch_ae&j=28170929&senddate=2022-06-24

[2] https://www.statista.com/statistics/1185536/sports-analytics-market-size/

[3] https://www.statista.com/statistics/1185536/sports-analytics-market-size/

(Northwestern, North Texas, George Mason, Mercer, Rice, Springfield College, Marquette) have added a minor or concentration in another degree (both BS and MS programs). The field of Sports Analytics is in the early, but fast, stage of growth in universities. We believe that growing the Sports Analytics program at UNC Charlotte with a BS degree will benefit the students and the university greatly.

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

The demand for having a Sports Analytics Program in higher education throughout the country is large. When the first sports analytics class at UNC Charlotte was taught in Fall 2019, there were 15 students. In 2022, there are now a total of three classes with 150 students total; classes are completely full with more on a waiting list. Each class filled up in less than 48 hours after registration started. UNC Charlotte has also had a student-run Sports Analytics Club for several years (70 students in 2022). Research with the few other institutions across the country with sports analytics programs has yielded similar results. At Virginia Tech, over 400 students applied in the first year their Sports Media Analytics Program was offered; they accepted 55 out of those 400 applicants. In 2017 Syracuse University became the first school to offer a four-year undergraduate course of study in sports analytics and in 2022, they extended this with an online certificate[4]. Syracuse's first graduating class was in 2021 (25 students). In 2020, over 1000 students applied to their undergraduate program. We expect high demand from UNC Charlotte students on par to the demand experienced at Virginia Tech and Syracuse. As UNC Charlotte has launched the Sports Analytics certificate, our School of Data Science (SDS) is receiving multiple inquiries from around the country as to the availability of the certificate and a BS degree program even though we have not yet launched a public website announcing our certificate program.

In 2022, UNC Charlotte faculty member John Tobias through his nonprofit Strength in Numbers hosted four sports analytics summer camps throughout the country in Charlotte, Los Angeles, New York City, and Minneapolis for underrepresented high-students. The camps attracted students from across the country and spurred interest in attending UNC Charlotte for the Sports Analytics Certificate[5]. Our sports analytics program directly has fielded over 100 unsolicited calls from potential students that've been interested in coming to UNC Charlotte for the sports analytics program.

IV. Access, Affordability, and Student Success: (*Provide an analysis of the impact of the*

[4] Syracuse Falk College Announces Online Certificate in Sports Analytics

[5] https://www.wbtv.com/2022/07/16/espn-statistician-unc-charlotte-professor-working-increase-diversity-sports-analytics/

program on student access and affordability. Maximum length 1,000 words. Reference sources such as College Scorecard, Census postsecondary outcomes data, etc. For graduate programs, focus on areas relevant to the institution's strategic plan.)

a. Analysis of the impact of the proposed program on student access, including key metrics identified in the UNC System Strategic Plan and statewide initiatives (such as myFutureNC).
b. ***Analysis of student debt levels*** for similar programs and programs at the same academic level at the institution.
c. Provide an analysis of indebtedness, repayment, and relationship to potential earnings.

The Sports Analytics BS degree program will be similar to UNC Charlotte's BS in Data Science in that any student accepted to UNC Charlotte will be able to declare this major and any student in good standing at the university will be allowed to transfer into the program. We will leverage programs and experience in the BS in Data Science that enable and support interested students that may not have an extensive math or programming background to succeed in the major. We have ensured that the proposed program is accessible to any interested student by eliminating any additional barriers or admission requirements. The North Carolina General Assembly has invested $41.2M for "Engineering North Carolina's Future," and expanding data science programs with UNC Charlotte committing to 2,000 additional data science, engineering and computer science graduations in the next 5 years.

The proposed program is expected to be similar to the overall student debt load for graduates of $22k[6]. This is lower than both the North Carolina and US average debt load for students. With the high potential incomes of around $80k/year, we expect our graduates to be able to repay their debts.[7]

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

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

The industry need for an undergraduate degree in sports analytics is based upon several factors. First, in the Charlotte area there is an expanding sport and recreation industry that is reliant on data analysis. Existing centers such as the US National Whitewater Center and

[6] https://inside.charlotte.edu/news-features/2021-11-16/unc-charlotte-students-graduate-student-loan-debt-lower-state-national
[7] https://www.bls.gov/careeroutlook/2015/interview/sports-statistical-analyst.htm

professional sports franchises such as the Carolina Panthers, Charlotte Hornets, Charlotte Checkers, Charlotte Knights, and Charlotte FC utilize data analytics to improve not only performance, but also marketing, merchandising and ticket revenues. Motorsports teams are also prevalent in the Charlotte area, many with national headquarters, and there are multiple motor speedway venues located in the region. NASCAR has a long history of using data analytics and has partnered with universities to leverage data science students for internships. All together the sport industry injects more than $2 billion annually into the local Charlotte economy, and there are major centers being developed in neighboring communities such as Kannapolis. In 2015, the US Bureau of Labor Statistics (BLS) was projecting a 27 percent growth in the Sport Analyst profession, with median wages of nearly $80,000 per year[8]. While this is older data, the BLS used the "statistician" field as a surrogate for sports analytics. In 2022, BLS showed statisticians, data scientists and similar jobs (including athletes and sports competitors) as some of the fastest growing fields through 2030 with average salaries above the previous figure of $80k[9]. With this type of job demand, the skills learned within the sports analytics degree will be transferable to other analytics jobs as well. One other data set comes from Comparably where a sports analyst's annual compensation is over $78k[10] (although sports analysts may be reporters as well as analytics experts). We expect entry-level salaries for sports analytics professionals to be similar to or slightly lower than computer scientists, data scientists, and statisticians ($60k-$80k with no experience).

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

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

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

   i. UNC Academic Program Costs

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

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

[8] https://www.bls.gov/careeroutlook/2015/interview/sports-statistical-analyst.htm

[9] https://www.bls.gov/emp/tables/fastest-growing-occupations.htm, https://www.glassdoor.com/Salary/NBA-Data-Scientist-Salaries-E2908_D_KO4,18.htm, https://www.glassdoor.com/Salary/ESPN-Data-Analyst-Salaries-E13401_D_KO5,17.htm

[10] https://www.comparably.com/salaries/salaries-for-sports-analyst

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

Year 1: Total costs $889k. Roughly 54% of the total costs are reallocations from current programs where the program can add seats to currently taught courses including courses from our Sports Analytics Certificate. New costs come from 1 new tenure track faculty. New costs also support one new graduate TA, one EHRA staff for operations, and other miscellaneous support. New tuition revenues of $549k would offset new costs of $412k.

Year 2: Total costs $1.7M. 37% of the total costs continue to be reallocations from current programs. Incremental costs from Year 1 support one new tenure track and two new additional non-tenure track faculty to teach new courses in the program and add additional capacity to core coursework in statistics and computer programming as well as additional TA support. Total new revenues of $1.6M easily offset the total new costs of $1.0M.

Year 3: Total costs $2.3M. Reallocated costs drop to 33% of the costs in Year 3 as new courses and sections require new faculty to teach. Incremental new costs from Year 2 support one new tenure track faculty, one new non-tenure track, and four new additional graduate assistantships. Total new revenues of $2.8M easily offset the total new costs of $1.5M.

Year 4: Total costs $2.6M. 29% of the total costs in Year 4 are reallocation from current programs; the program costs and revenues are growing at similar rates. Incremental new costs over Year 3 support one new non-tenure track faculty and two new graduate assistantships and one new EHRA student services to increase capacity. Total new revenues of $3.7M offset the total new costs of $1.8M.

Year 5: Total costs $2.9M. 25% of the total costs in Year 5 are reallocation from current programs the program is reaching steady state. Incremental costs include one additional tenure track faculty, two new graduate assistantships, and one new student services staff member. Total new revenues of $4.2M exceed the total new costs of $2.2M.

ii. UNC Academic Program Revenues
Funding sources may include enrollment growth formula funding, other state

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

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

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

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

The program revenues are expected to be primarily supported by regular tuition and reallocation of one lecturer and current faculty that teach course courses in statistics, computer science, and kinesiology. We will expect some efficiency of faculty, staff, and support from SDS, but the majority of reallocated support is due to capacity in courses outside of this new program (computer science, statistics, general education). Any F&A from external funding of research will be utilized back within the program, although this is expected to be a minor contributor. As the program grows, major fees will be utilized to support staff and student services. The tuition and appropriation revenues are determined at an institutional level. The numbers reflected may or may not reflect an actual change in the university budget.

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

    i. How does the institution budget and allocate enrollment growth revenues? Is this program expected to generate new enrollment growth for the institution? If so, how will

funds be allocated to the proposed program or be used to further other institutional priorities?

The budget review process is conducted by the colleges and the Office of Academic Affairs annually. Deans submit funding requests to Academic Affairs based on the prioritized needs of each college. The proposed program is expected to generate new enrollment growth for UNC Charlotte. Increases in enrollment and the corresponding increase in Student Credit Hours (SCH) are reviewed by the Dean's office and examined within the context of the UNC System Office funding formula and University priorities when determining allocation of enrollment growth funds and general tuition and fees. If available, funds will be used to hire additional faculty and staff to support teaching and research.

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

UNC Charlotte is seeking $12M in legislative funding for data science. This request has been approved by the UNC System and is under consideration by the General Assembly for appropriation in the FY23-24 and FY24-25 budgets. As part of that request, $2.2M in recurring funds and $800K in one-time funds will be used to launch the proposed program. If this funding is approved, the budget will be adjusted accordingly. If the appropriation does not occur, the institution will reassess financial support needed for the program which may result in the inability to proceed.

iii. Will the institution require differential tuition supplements or program-specific fees? If so, please elaborate.

1. State the amount of tuition differential or program-specific fees that will be requested.

   A major fee of $120/semester will be requested. This is consistent with the major fee currently in place in the School of Data Science.

2. Describe specifically how the campus will spend the revenues generated.

   We will invest the generated revenue to support fixed-term faculty, a part-time/full-time administrative coordinator, provide aid to students, support program advertising, research, and dissemination of findings.

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

The current faculty at the University have some of the expertise needed to teach the courses in the proposed program. In addition, several of the courses in the proposed program are or will be shared with the existing degree programs in the colleges that are part of SDS. APHCS also has a small amount of capacity in its current courses. However, while such sharing will create synergy between the proposed program and existing programs, this program cannot be launched as planned without the additional resources outlined. Funding for this program is projected to come from a legislative budget request for data science approved by the UNC System and under consideration by the General Assembly for appropriation in the FY23-24 and FY24-25 budgets. If the appropriation does not occur, the institution will reassess financial support needed for the program which may result in the inability to proceed.

VII. For Research Doctoral Programs Only:

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

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

N/A

VIII. For Professional Practice Doctoral Programs Only:

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

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

N/A

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

Position Title	Name	E-mail Address	Telephone
SPORTS ANALYTICS PROGRAM DIRECTOR	JOHN TOBIAS	JTOBIAS@UNCC.EDU	704 687-5954
EXECUTIVE DIRECTOR SDS	DOUG HAGUE	DHAGUE@UNCC.EDU	704 562-6867
CHAIR APHCS	JP BARFIELD	abarfie5@uncc.edu	704 687-1843
DIRECTOR OF STUDENT SERVICES	CARLY MEHEDY	CFLETCHER@UNCC.EDU	704 687-0068
DATA SCIENCE PROGRAM DIRECTOR	ANGELA BERARDINELLI	aberardinelli@uncc.edu	704 687-1234

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

Position Title	Signature	Date
Chancellor		4/6/23
Provost		4/5/2023

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

Position Title	Signature	Date
Chancellor		
Provost		

	Current Program Sources (if applicable)	Rate	Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
1	General Fund Appropriation			$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 646,484
2	NC Promise Appropriation								$ -
3	*Resident Enrollment (FTE)*								
4	Regular Resident Tuition (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
5	*Nonresident Enrollment (FTE)*								
6	Regular Nonresident Tuition (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
7	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
8	Special Fees		$ -	$ -	$ -	$ -	$ -	$ -	$ -
9	External Funding (In-Hand Only)								$ -
10	Other Funding (Identify)								$ -
11	**Total Current Sources**		$ -	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 129,297	$ 646,484
	Proposed New Program Sources								
12	*Incremental Resident SCH*			1,710	3,720	4,830	5,640	6,000	
13	Enrollment Funding Appropriation	$ 430	$ -	$ -	$ 367,650	$ 1,167,450	$ 1,838,250	$ 2,251,050	$ 5,624,400
14	*Resident Enrollment (FTE)*			57	124	161	188	200	
15	Regular Resident Tuition (Annual Rate)	$ 3,812	$ -	$ 217,284	$ 472,688	$ 613,732	$ 716,656	$ 762,400	$ 2,782,760
16	NC Promise Appropriation (Resident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
17	*Nonresident Enrollment (FTE)*			18	41	53	62	66	
18	Regular Nonresident Tuition (Annual Rate)	$ 17,936	$ -	$ 322,848	$ 735,376	$ 950,608	$ 1,112,032	$ 1,183,776	$ 4,304,640
19	NC Promise Appropriation (Nonresident)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
20	Tuition Differential (Annual Rate)		$ -	$ -	$ -	$ -	$ -	$ -	$ -
21	Special Fees	$ 113	$ -	$ 8,438	$ 18,563	$ 24,075	$ 28,125	$ 29,925	$ 109,125
22	External Funding (In-Hand Only)								$ -
23	Other Funding (Identify)								$ -
24	**Total New Sources**		$ -	$ 548,570	$ 1,594,277	$ 2,755,865	$ 3,695,063	$ 4,227,151	$ 12,820,925
25	**Total Proposed Program Sources**		$ -	$ 677,866	$ 1,723,573	$ 2,885,162	$ 3,824,360	$ 4,356,448	$ 13,467,409

Comments

Assume 12 Sports analytics courses/year and 30 credit hour/yr 30 SCH/student/yr

Special fee aligns with College of Computing current major fee (where School of Data Science is housed)

Mix of tranfer and incoming students over half are transfer (or transfer in from another major). 25% of which are non resident

Assume 85% retetion rate of students.

Quick start on launch of 75 students due to current certificate

long term assumption of just over 100 students enter major/year

		Year 0 (Start Up)	1st Year	2nd year	3rd Year	4th Year	5th Year	TOTALS
	Current Program Uses (if applicable)							
1	Tenure/Tenure-Track Faculty		$ 330,425	$ 330,425	$ 330,425	$ 330,425	$ 330,425	**$ 1,652,125**
2	Non Tenure-Track Faculty		129,297	258,593	387,890	387,890	387,890	**$ 1,551,560**
3	Graduate Student Support							**$ -**
4	EHRA Non-Faculty Positions		17,240	17,240	17,240	17,240	17,240	**$ 86,198**
5	Student Support (Scholarships)							**$ -**
6	Libraries							**$ -**
7	Supplies and Materials							**$ -**
8	Travel, Communications, and Fixed Charges							**$ -**
9	Equipment and Technology							**$ -**
10	Facility Repair and Renovation							**$ -**
11	Other (Identify)							**$ -**
12	**Total Current Uses**	**$ -**	**$ 476,961**	**$ 606,258**	**$ 735,555**	**$ 735,555**	**$ 735,555**	**$ 3,289,883**
	Proposed New Program Uses							
13	Tenure/Tenure-Track Faculty*		$ 165,212	$ 330,425	$ 495,637	$ 495,637	$ 660,850	**$ 2,147,762**
14	Non Tenure-Track Faculty*			258,593	387,890	517,187	517,187	**$ 1,680,857**
15	Graduate Student Support*		73,480	146,960	293,920	367,400	440,880	**$ 1,322,641**
16	EHRA Non-Faculty Positions*		86,198	172,396	172,396	258,593	344,791	**$ 1,034,374**
17	Student Support (Scholarships)							**$ -**
18	Libraries		10,000	10,000	10,000	10,000	10,000	**$ 50,000**
19	Supplies and Materials		5,000	6,000	7,000	8,000	9,000	**$ 35,000**
20	Travel, Communications, and Fixed Charges		20,000	25,000	30,000	35,000	40,000	**$ 150,000**
21	Equipment and Technology		37,500	82,500	107,000	125,000	133,000	**$ 485,000**
22	Facility Repair and Renovation							**$ -**
23	Facility New Construction or Expansion							**$ -**
24	Other (Identify)		15,000	15,000	15,000	15,000	15,000	**$ 75,000**
25	**Total New Uses**	**$ -**	**$ 412,390**	**$ 1,046,874**	**$ 1,518,843**	**$ 1,831,818**	**$ 2,170,708**	**$ 6,980,633**
26	**Total Proposed Program Uses**	**$ -**	**$ 889,351**	**$ 1,653,132**	**$ 2,254,398**	**$ 2,567,372**	**$ 2,906,263**	**$ 10,270,516**

Comments

Program curriculum will leverage current computing, mathematics, and statistics courses (as well as gen ed and other courses) thus new and reallocated FTE tenure track

We currently have one lecturer in Sports Analytics that will be fully teaching within this program (currently in Sports Analytics certificate), add capacity to other areas of university

Over the 5 years, we will need 4 TT and 4 NTT faculty positions to teach the increasing load of SCH

This model meets the 5 courses/instructor with 40-50 students/course

Increasing EHRA Staff of advisors and student support

Grad student support are PhD Teaching assistance for Sports Analytics Courses

E&T will be primarily software and cloud based services for students and faculty

Benefits 143.66%

$	165,212	cost/TT	adding of tenure track in Sports Analytics (APHCS, SDS) as well as computer science and stat.
$	129,297	cost/NTT	Adding capacity in general education, APHCS, SDS, CS, Stat.
$	36,740	cost of TA	
$	86,198	cost of EHRA non faculty	

To: Mr. John Tobias, Sports Analytics Lecture, UNC Charlotte
From: Christopher Paolini
Subject: Support for Sports Analytics Bachelor of Science
Date: January 30, 2023

We have really enjoyed getting to know you and your students since the Fall of 2022 and am in full support of UNC Charlotte launching a BS degree in Sports Analytics. Over the last several years, analytics has become a larger and more integral part of our operations. We are supportive of this proposal as we see a large need for more talent in our organization as well as in the larger industry.

Sincerely,

Christopher Paolini

Director, Business Strategy & Analytics

Carolina Hurricanes

CHARLOTTE

TO: Mr. John Tobias, Sports Analytics Lecture, UNC Charlotte

FROM: Mike Hill, Director of Athletics, UNC Charlotte

DATE: January 25, 2023

RE: Support for Sports Analytics Bachelor of Science

Our coaches and Athletics leadership have thoroughly enjoyed working with you and your students since the Fall of 2021, and we are in full support of UNC Charlotte launching a BS degree in Sports Analytics. Over the last several years, analytics has become a larger and more integral part of our operations. We are supportive of this proposal as we see a large need for more talent in our organization as well as in the larger industry. Best of luck in this pursuit, and if we can advocate for this important program in any way, please let us know.

9201 University City Blvd. | Charlotte, NC 28223
Phone: 704.687.4949

C-USA

January 28, 2023

On behalf of The US Performance Center, we are in in full support of UNC Charlotte launching a BS degree in Sports Analytics. We are supportive of this proposal and see the value of this program as there is a large need for more talent in this area. We are a campus partner with UNCC and recognize the benefit this program would have at USPC.

Sincerely yours,

Ike Belk

Ike Belk - Co-Owner / Founder
9319 Robert D Snyder Road,
Suite 416
Charlotte, NC 28223
C: (980) 257-0771
ike@usperformancecenter.com

UNIVERSITY OF NORTH CAROLINA
CHARLOTTE

TO: Dr. Abbey Thomas, Chair BS in Sports Analytics Planning Committee
FROM: J.P. Barfield
SUBJECT: Support for BS in Sports Analytics
DATE: September 6, 2023

This memo documents my support of the proposal to add a BS in Sports Analytics at UNC Charlotte. I understand the needs of the program and the funding mechanisms for growing the faculty and staff support. My Department will provide the necessary capacity and guidance for this new program as proposed.

Sincerely,

J.P. Barfield

J.P. Barfield, FACSM
Chair, Department of Applied Physiology, Health, and Clinical Sciences

UNIVERSITY OF NORTH CAROLINA
CHARLOTTE

TO: Dr. Abbey Thomas, Chair BS in Sports Analytics Planning Committee

FROM: Catrine Tudor-Locke, Dean, College of Health and Human Services

SUBJECT: Support for BS in Sports Analytics

DATE: September 8, 2023

I support the proposal to add a BS in Sports Analytics at UNC Charlotte. I understand the needs of the program and the funding mechanisms for growing the faculty and staff support. My College/Department will provide the necessary capacity and guidance for this new program as proposed.

Sincerely,

Catrine Tudor-Locke

Dean, College of Health and Human Services

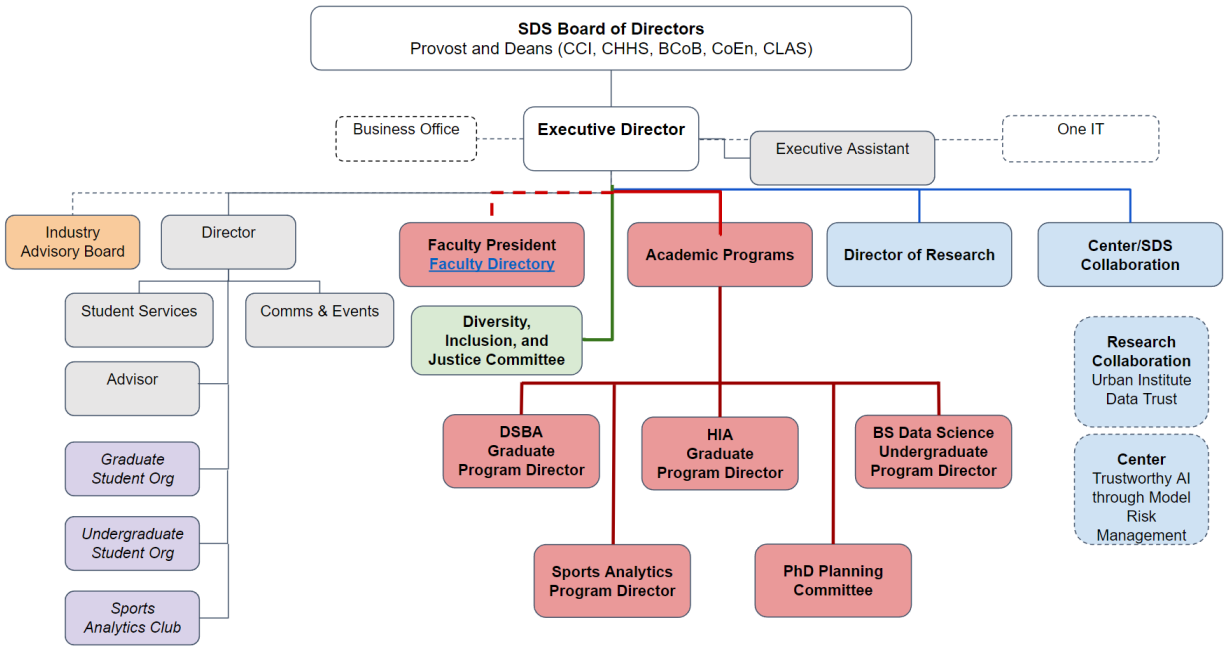
College of Health and Human Services
Office of the Dean

UNC Charlotte
9201 University City Blvd
Charlotte, NC 28223

https://health.charlotte.edu/

Appendix C: Faculty

SDS org chart



Faculty Roster Form
Qualifications of Full-Time and Part-Time Faculty

Name of Institution: University of North Carolina at Charlotte

Name of Primary Department, Academic Program, or Discipline: School of Data Science, Sports Analytics BS

Academic Term(s) Included: Fall 2022, Spring 2023 **Date Form Completed: August 9, 2023**

1	2	3	4
NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
Yaorong Ge, Professor of Software and Information Systems (F)	ITIS 3135 Web App Design and Development [3]; Spring 2022, Spring 2023 DSBA/HCIP 6160 Big Data Design [3]; Spring 2019 HCIP 6393 Hlth Data Integration [3]; Fall 2020, Fall 2021, Fall 2022 HCIP 6392 Enterprise Hlth Info Systems [3]; Spring 2021, Spring 2022 ITIS 6180/8180 Foundations of Hlth Informatics [3]; Spring 2019	Ph.D., Vanderbilt University, Computer Science, 1995 M.S., Vanderbilt University, Computer Science, 1989 B.S., Zhejiang University, Computer Science, 1984	Computer vision of health outcomes particularly skeletonization, radiology, and computer aided diagnosis
Wenwen Dou, Associate Professor of Computer Science (F)	ITCS 4010 Topics in Computer Science: Web Mining [3]; Fall 2019, Fall 2021 ITCS 4122 Visual Analytics [3]; Fall 2023 DSBA/HCIP 5122 Visual Analytics [3]; Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023	Ph.D., University of North Carolina at Charlotte, Computer and Information Systems, 2012 B.S.E., Beijing University of Posts and Telecommunications, Engineering, 2006	Visualization and natural language processing research
Liyue Fan, Assistant Professor of Computer Science (F)	DSBA/HCIP 6160 Big Data Design [3]; Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021 DSBA/ITSC 6010/8010 Special Topics: Data Privacy [3]; Fall 2021 ITIS 6220/8220 Data Privacy [3]; Fall 2021 DSBA/HCIP 6160 Database Systems [3]; Fall 2022	Ph.D., Emory University, Computer Science and Informatics, 2014 B.S., Zhejiang University, Mathematics & Applied Mathematics, 2008	Data privacy and differential privacy method development.

1	2	3	4
NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
	ITCS 6160/8160 Database Systems [3]; Fall 2022		
Jake Minwoo Lee, Assistant Professor of Computer Science (F)	ITCS 4156 Intro to Machine Learning [3]; Spring 2020, Fall 2020, Fall 2021, Spring 2022 ITCS 3153 Intro Artificial Intelligence [3]; Fall 2023 ITCS 8010 Topics in CS: [3]; Fall 2019 ITCS 8156 Machine Learning [3]; Spring 2019, Fall 2019, Fall 2020, Spring 2023	Ph.D., Colorado State University, Computer Science, 2017 M.ENGR., Korea Aerospace University, Computer Engineering, 2002 B.S., Korea Aerospace University, Computer Engineering, 2000	Deep neural network methodology development
Xi Niu, Associate Professor of Software and Information Systems (F)	ITCS 3160 Database Design & Implem [3]; Fall 2020 DSBA 6162 Knowledge Discov in Databases [3]; Fall 2019, Spring 2020, Fall 2020 DSBA/HCIP 6400 Internship [3]; Spring 2019, Fall 2019, Spring 2023 DSBA 6101 Special Topics in DSBA: Text Mining and Retrieval [3]; Fall 2021, Spring 2022 ITIS 8120 Applied Databases [3]; Spring 2019 ITIS 8410 Personalized and Recommender Syst [3]; Spring 2021	Ph.D., University of North Carolina at Chapel Hill, Information Sciences and Library Science, 2012 M.S., Tsinghua University, Computer Software Engineering, 2006 B.S., BeiHang University, Automation, 2003	Natural language processing research
Zbigniew Ras, Professor of Computer Science (F)	ITCS 3162 Introduction to Data Mining [3]; Fall 2021 DSBA 6162/ITSC 8162 Knowledge Discovery in Databases [3]; S/F 2019, Spring 2020, S/F 2021, S/F 2022, Spring 2023 ITCS 8150 Intelligent Systems [3]; Fall 2019, Fall 2020, Fall 2021, Fall 2022	Ph.D., Warsaw University, Computer Science, 1973 M.S., Warsaw University, Mathematics, 1970	Knowledge discovery and data mining of healthcare information
Wlodek Zadrozny, Professor of Computer Science (F)	ITCS 4111 Intro to Natural Lang Process [3]; Spring 2023	Ph.D., Polish Academy of Sciences, Mathematics, 1980 M.S., Warsaw University, Mathematics, 1976	Large language models and topological data analysis of healthcare data. 27 years at IBM Watson Research Center

1	2	3	4
NAME (F, P)	**COURSES TAUGHT** **Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK** **Relevant to Courses Taught, Including Institution & Major** **List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS** **Related to Courses Taught**
	DSBA 6345 Modern Data Science Systems [3]; Spring 2021, Spring 2022, Spring 2023 DSBA 6100 Big Data Analytics for Comp Ad [3]; Fall 2021 ITCS 8156 Machine Learning [3]; Fall 2022		
Nadia Najjar, Associate Teaching Professor of Computer Science (F)	ITCS4681 Senior Design I [3]; Spring 2019, Spring 2022, Fall 2022, Spring 2023, Fall 2023 ITIS 4166 Network Based App Dvlpment [3]; Spring 2019, Fall 2019, Spring 2020, Spring 2021 ITSC 3155 Software Engineering [3]; Spring 2019, Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Fall 2022 ITSC 1212 Intro to Computer Science I [3]; Spring 2020, Fall 2020, Fall 2021, Fall 2022, Fall 2023 ITSC 1213 Intro to Computer Science II [3]; Spring 2019, Spring 2021, Spring 2022 DTSC 3601 Predictive Analytics [3]; Fall 2021, Fall 2022, Fall 2023 DTSC 3602 Predictive Analytics [3]; Fall 2021, Fall 2022, Fall 2023 ITSC 4682 Design II [3]; Spring 2022 HCIP 5376 Intro to Prgrmg for Hlth Info [3]; Fall 2019 ITIS 5166 Network Based Appl Dvlpmnt [3]; Fall 2022, Spring 2023	Ph.D., UNC Charlotte, Computing and Information Systems, 2015 M.S., UNC Charlotte, Information Technology, 2007 B.S., George Mason University, Electrical and Electronics Engineering, 1999	
Michael Grabchak, Professor of Statistics (F)	MATH 2164 Matrices & Linear Algebra [3]; Fall 2019 MATH/STAT 3122 Probability & Statistics I [3]; Fall 2019, 2021 STAT 3128 Prob & Stat for Engineers [3]; Fall 2020 MATH 4122 Prob & Stochastic Models [3]; Spring 2020, 2022	Ph.D., Cornell University, Statistics, 2011 M.S., Cornell University, Statistics, 2008 B.A., Rutgers University, Computer Science and Mathematics, 2004	Statistical and probability research in various algorithms

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NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
	MATH 4128 Risk Theory [3]; Spring 2019, 2021, 2023 MATH/STAT 5128 Applied Probability I [3]; Fall 2020, 2022, 2023 MATH 7120/8120 Probability Theory 1 [3]; Spring 2019, Spring 2020, Spring 2021, Spring 2022, Spring 2023		
Jiancheng Jiang, Professor of Statistics (F)	STAT 2223 Elements of Statistics II [3]; Fall 2019, 2020, Fall 2022 STAT 3140 Design of Experiments [3]; Fall 2020 STAT 3160 Applied Multivariate Analysis [3]; Fall 2019, 2021 STAT 3150 Time Series Analysis [3]; Spring 2022 STAT 4123 Applied Statistics I [3]; Fall 2023 DSBA 6115 Stat Learning with Big Data [3]; Fall 2021, 2022 STAT 8133 Multivariate Analysis [3]; Spring 2020, 2023 STAT 8135 Statistical Computation [3]; Spring 2020, 2021 STAT 8139 Time Series Analysis [3]; Spring 2022	Ph.D., Nankai University, Statistics, 1994 M.A., Nankai University, Mathematical Statistics, 1991 B.S., Nankai University, Mathematics, 1988	Statistical and probability research in various algorithms
Shaoyu Li, Associate Professor of Statistics (F)	STAT 1220 Elements of Stat I (BUSN) [3]; Spring 2020 STAT 3110 Applied Regression [3]; Fall 2019, 2020, 2021, 2022 MATH/STAT 3122 Probability & Statistics I [3]; Fall 2020, 2021, 2022, 2023 MATH/STAT 3123 Probability & Statistics II [3]; Spring 2021, 2022, 2023, Fall 2023 STAT 3128 Prob & Stat for Engineers [3]; Fall 2019 STAT 4124 Applied Statistics II [3]; Spring 2020	Ph.D., Michigan State University, Statistics and Quantitative Biology, 2011 M.A., Huazhong University of Science and Technology, Applied Statistics, 2006 B.A., Huazhong University of Science and Technology, Applied Mathematics, 2003	Biostatistics of healthcare and cancer research

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NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
	STAT 5124 Applied Statistics II [3]; Spring 2020, 2021, 2022, 2023 ITCS 6040 Topics in Data Science: Model Risk Management [3]; Fall 2022		
Hee Cheol Chung, Assistant Professor of Statistics (F)	STAT 3128 Prob & Stat for Engineers [3]; Fall 2022, 2023, Spring 2023	Ph.D., University of Georgia – Athens, Statistics, 2020 M.A., Yonsei University, Statistics, 2014 B.A., Yonsei University, Statistics, 2009 B.S., Yonsei University, Physical Education, 2009	Hired Fall 2022. Former elite snowboarder, papers in progress on statistics of distance running performance.
Abbey Thomas Fenwick, Associate Professor of Applied Physiology, Health, and Clinical Sciences (F)	KNES 4293 Biomechanics [3]; Fall 2019, 2020, 2021 EXER 4293 Biomechanics [3]; Fall 2022 EXER 4115 Research Methods in APHCS [3]; Spring 2023 KNES 6170 Neuromechanics of Gait & Post [3]; Spring 2019 ATRN 6113 Patient Centered Health Care [3]; Spring 2023 ATRN 6105 Therapeutic Modalities [3]; Fall 2023	Ph.D., University of Michigan, Kinesiology, 2010 M.Ed., University of Virginia, Health and Physical Education, 2006 B.S., Pennsylvania State University, Kinesiology, 2005	Biodynamics Research Laboratory
Luke Donovan, Associate Professor of Applied Physiology, Health, and Clinical Sciences (F)	KNES 2169 Hum Anat & Phys for Hlth Pr II [3]; Spring 2019 EXER 2298 Applied Kinesiology [3]; Fall 2023 KNES 4293 Biomechanics [3]; Spring 2021 ATRN 6104 Clin Eval/Diag of Lower Extrem [3]; Fall 2019, 2020, 2021, 2022 ATRN 6106 Therapeutic Exercise Technique [3]; Fall 2019, 2020, 2021, 2022, 2023 ATRN 6111 Therapeutic Interventions [3]; Spring 2020, 2021, 2022, 2023	Ph.D., University of Virginia, Kinesiology, 2014 M.Ed., University of Virginia, Kinesiology, 2010 B.S., Pennsylvania State University, Kinesiology, 2009	Biodynamics Research Laboratory
Joe Marino, Associate Professor of Applied Physiology, Health,	KNES 3285 Principles of Strength & Cond [3]; S/F 2019, S/F 2020, S/F 2021	Ph.D., University of Toledo, Exercise Science, 2009 M.A., Adelphi University, Exercise Science, 2004	Co-Director, Laboratory of Systems Physiology where athlete data and performance are measured

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NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
and Clinical Sciences (F)	KNES 3287 Exer Testing: Principles & Apps [3]; Spring 2019, 2020 KNES 4115 Research Methods [3]; Fall 2020 KNES 6115 Rsch Methods in Kinesiology [3]; Fall 2019	B.A., Adelphi University, Exercise Science, 2003	
Auguste "J.P." Barfield, Professor and Chair of Applied Physiology, Health, and Clinical Sciences (F)	EXER 2298 Applied Kinesiology [3]; Fall 2023	D.A., Middle Tennessee State University, Physical Education, 2000 M.A., Appalachian State University, Physical Education, 1996 B.A., University of North Carolina at Chapel Hill, Radio and Television, 1993	
John Tobias, Lecture of Data Science (F)	ITCS 4010 Topics in Computer Science: Introduction to Sports Statistics and Analytics [3]; Fall 2019, S/F 2020, S/F 2021 BUSA 3000 Topics in Business Analytics: Sport Business Analytics [3]; Spring 2021 DTSC 1110 Sports Analytics [3]; Fall 2021, S/F 2022, S/F 2023 DTSC 2110 Sport Business Analytics [3]; Fall 2021, S/F 2022, S/F 2023 DTSC 3400 Data Science Practicum [3]; Fall 2022, 2023	M.S., High Point University, Sports Management, 2004 B.S., UNC Charlotte, Criminal Justice, 1994	ESPN and other media companies statistician for football, basketball, softball, and the Olympics.
Marco Scipioni, Associate Teaching Professor of Data Science (F)	DTSC 2301 Modeling and Society [3]; Spring 2023 DTSC 2302 Modeling and Society [3]; Spring 2023 DTSC 1301 Data and Society A [3]; Fall 2023 DTSC 1302 Data and Society [3]; Fall 2023 DTSC 3000 Special Topic: Computer Vision with Python [3]; Fall 2023	Ph.D., UNC Charlotte, Optical Science and Engineering, 2010 M.S., UNC Charlotte, Applied Physics, 2004 B.S., UNC Charlotte, Physics, 2000	
Douglas Hague, Executive Director and Professor of		Ph.D., Pennsylvania State University, Materials Engineering, 1995	Emerging research in progress on track and field and cross

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NAME (F, P)	**COURSES TAUGHT Including Term, Course Number & Title, Credit Hours (D, UN, UT, G) [Dual]** Note – for substantive change prospectuses/applications, list the courses *to be taught*, not historical teaching assignments	**ACADEMIC DEGREES & COURSEWORK Relevant to Courses Taught, Including Institution & Major List specific graduate coursework, if needed**	**OTHER QUALIFICATIONS & COMMENTS Related to Courses Taught**
Practice of Data Science (F)	DSBA 6400 Internship [3]; S/F 2020, Fall 2021, S/F 2022, Spring 2023 HCIP 6400 Internship [3]; Fall 2021, 2022, Spring 2023 DSBA 6010 Special Topics in DSBA: Analytical Storytelling [3]; Fall 2020, Spring 2022	M.S., Pennsylvania State University, Metallurgical Engineering, 1992 B.S., University of Tulsa, Engineering Physics, 1989	country athlete performance improvements
Bienvenido Rodriguez-Medina, Lecture and Lab Manager, Electrical and Computer Engineering (F)	DTSC 3000 Special Topic: Advanced Baseball Analytics [3]; Fall 2022, 2023	Ph.D., Mississippi State University, Electrical and Electronics Engineering, 2008 M.S.E.E., University of Puerto Rico-Mayaguez, Electrical and Electronics Engineering, 2004 B.S.E.E., University of Puerto Rico-Mayaguez, 2001	Has been working with UNC Charlotte baseball team for 5 years developing sensors to collect data and analyzing the information for player development
George Shaw Assistant Professor of Public Health Sciences(F)	HCIP 6380 Intro to Health Informatics [3]; Spring 2019, 2020, Fall 2023 HSMT 4103 Health IT Management [3]; Fall 2019, 2020, S/F 2021, Spring 2022 HCIP 6396 Busn Intelligence in Hlthcare [3]; Fall 2021, 2022, 2023 HSMT 4400 Health Systems Capstone [3]; Spring 2022 HSMT 3104 Health Information Systems [3]; Fall 2022, Spring 2023	Ph.D., University of South Carolina, Library and Information Science, 2018 CERT, University of South Carolina, Health Communication, 2018 M.S., North Carolina A&T University, Management, Concentration in Management Information Systems, 2009 B.S.B.A., Charleston Southern University, Business Administration and Concentration in Information Systems, 2007	Social media analysis of healthcare through pattern recognition in unstructured data sources to inform health interventions.
Shi Chen, Associate Professor of Public Health Sciences (F)	HLTH 4104 Epidemiology [3]; Spring 2019, 2020, 2021, 2022, 2023 HCIP 6380 Intro to Health Informatics [3]; Fall 2019, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022, Spring 2023	Ph.D., Pennsylvania State University, Entomology and Operations Research, 2011 B.S., Nanjing University, Zoology, 2006	Research in individual, spatial, and temporal heterogeneity to determine both pathogen transmission dynamics

Appendix D: Student Learning Objectives for B.S. in Sports Analytics

B.S. in Sports Analytics

Student Learning Outcomes

SLO #1

Students will use one variable calculus and elements of Bayesian reasoning to analyze sports data.

1.1 Plan for current year- Effectiveness measure:

The direct measure used to gauge acquisition of SLO#1 is the results of the final project for EXER 4115 with a score of [1] or above which corresponds to meets expectations and above on the attached standardized rubric (SLO Appendix C). The final project is a research paper on the topic of the student's choosing to answer a sports analytics question. Students are required to perform a statistical analysis as part of this research paper.

1.2 Plan for current year- Methodology:

Instructional methodology: Synchronous lecture sessions with discussion, case studies, various application/analysis techniques, and in-class practice sessions.

Summative assessments: For the direct measure, the final project assesses the students' ability to use statistical analysis techniques, including Bayesian reasoning, to design and solve a real-world problem with sports analytics methods and processes.

Faculty data collection and review: EXER 4115 faculty will utilize a standardized rubric to score the final project and report the results on critical thinking to the executive director. Review of the data will occur at the next program faculty meeting following the end of the semester. Changes will be recommended to the executive director and the program board on the data collected and feedback from faculty.

Level of proficiency: Proficiency will be defined as a score of [1] or meets expectations and above as defined in the standardized rubric.

1.3 Plan for current year- Expected performance outcome

Performance outcome: The performance outcome for the direct measure is defined as ≥75% of the students will complete the final project for EXER 4115 with a grade of [1] or meets expectations and above as defined in the standardized rubric.

Supporting Documentation- Standardized rubric

SLO #2

Students will use their knowledge of human physiology to interpret how an athlete's physical characteristics impact sports performance, making considerations for athlete demographics, health status, and training loads.

1.1 Plan for current year- Effectiveness measure:

The direct measure used to gauge acquisition of SLO#2 is successful completion of a closed book exam on specific questions, examples of which can be found in the attached list (SLO Appendix D). Successful completion is defined as a score of 80% or higher on the exam.

1.2 Plan for current year- Methodology:

Instructional methodology: Synchronous lecture sessions with discussion and case studies.

Summative assessments: For the direct measure, the students will take a written exam that includes questions from the attached list (see SLO Appendix D). Question responses will be graded using a standardized rubric based upon the expected level of understanding of machine learning.

Faculty data collection and review: SPOA 3110 faculty will utilize a standardized rubric to score the written examination and report the results to the executive director. Review of the data will occur at the next program faculty meeting following the end of the semester. Changes will be recommended to the executive director and the program board on the data collected and feedback from faculty.

Level of proficiency: Proficiency will be defined as a score of ≥80% as defined in the standardized rubric (SLO Appendix D).

1.3 Plan for current year- Expected performance outcome

Performance outcome: The performance outcome for the direct measure is defined as ≥75% of the students will complete the written exam questions for SPOA 3110 with a grade of 80% or higher as defined in the standardized rubric.

Supporting Documentation- Sample questions and standardized rubric

SLO#3

Students will communicate effectively incorporating professional behavior, utilizing inclusive language, employing an evidence-based approach that can be understood by both Sports Analytics professionals and laypersons in related fields utilizing oral and written communication.

1.1 Plan for current year- Effectiveness measure:

The direct measure used to gauge acquisition of oral communication skills are the results of a final project presentation for SPOA 4110 with a score of [1] or above which corresponds to meets expectations and above on the attached standardized oral communication rubric (SLO Appendix E). For the final project, students will explain (in a paper and class presentation) the outcomes of wearable data provided to them.

1.2 Plan for current year- Methodology:

Instructional methodology: Synchronous lecture sessions with discussion, case studies, hands-on skills, and programming.

Summative assessments: For the direct measure, the final project assesses the student's knowledge of the course objectives relevant to written and oral communication of the results of data analyses.

Faculty data collection and review: SPOA 4110 faculty will utilize a standardized rubric to score the final project oral presentation and report the results on oral communication skills to the executive director. Review of the data will occur at the next program faculty meeting following the end of the semester. Changes will be recommended to the executive director and the program board on the data collected and feedback from faculty.

Level of proficiency: Proficiency will be defined as a score of [1] or meets expectations and above as defined in the standardized rubric.

1.3 Plan for current year- Expected performance outcome

Performance outcome: The performance outcome for the direct measure is defined as ≥75% of the students will complete the final project oral presentation for SPOA 4110 with a grade of [1] or meets expectations and above as defined in the standardized rubric.

Supporting Documentation- Standardized rubric

SLO#4

Students will design and execute a data science project that combines technical, analytical/machine learning, interpretive, and social dimensions to solve a real-world problem.

1.1 Plan for current year- Effectiveness measure:

The direct measure used to gauge acquisition of critical thinking skills are the results of the final project presentation for SPOA 4120 with a score of [1] or above which corresponds to meets expectations and above on the attached standardized critical thinking rubric (SLO Appendix F). For the final project, students will ask and answer a real-world sports analytics question, designing a study, collecting and processing their own data.

1.2 Plan for current year- Methodology:

Instructional methodology: Synchronous lecture sessions with discussion, case studies, various application/analysis techniques, and in-class practice sessions.

Summative assessments: For the direct measure, the final project's written and oral presentation assesses the students' ability to use critical thinking to design and execute a real-world problem with social implications with sports analytics methods and processes.

Faculty data collection and review: SPOA 4120 faculty will utilize a standardized rubric to score the final project written submission and oral presentation and report the results on critical thinking to the executive director. Review of the data will occur at the next program faculty meeting following the end of the semester. Changes will be recommended to the executive director and the program board on the data collected and feedback from faculty.

Level of proficiency: Proficiency will be defined as a score of [1] or meets expectations and above as defined in the standardized rubric.

1.3 Plan for current year- Expected performance outcome

Performance outcome: The performance outcome for the direct measure is defined as ≥75% of the students will complete the final project oral presentation for SPOA 4120 with a grade of [1] or meets expectations and above as defined in the standardized rubric.

Supporting Documentation- Standardized rubric

Appendix E- Supporting Documentation for SLO 1

SLO #1: Students will demonstrate acceptable statistical analysis skills

EXER 4115

Data Analysis Rubric for B.S. in Sports Analytics

	Excels (2)	**Acceptable (1)**	**Unacceptable (0)**
Poses research questions	Student poses a research question that is clearly stated, relevant to the literature, important, and testable.	Student poses a research question that is clearly stated, but one of the following is missing: relevance to the literature, importance, and testability.	Research questions are not clearly stated and/or two of the following are missing: relevance to the literature, importance, and testability.
Generates hypotheses based on existing research	Clearly summarizes and critiques research, comparing and evaluating competing perspectives. Uses existing literature to derive hypotheses about their research question.	Clearly summarizes and critiques research, comparing and evaluating competing perspectives. Existing literature does not strongly support hypotheses about their research question.	Relevant research is missing and does not support the hypotheses.
Develops methods and analysis plan to answer research question	Methods are sound and defensible based on previous research. Statistical analysis plan is adequately described and appropriate to answer the research question.	Methods are not adequate based on previous research. Statistical analysis plan is adequately described and appropriate to answer the research question.	Methods are questionable and the statistical analysis plan is inappropriate for answering the research question.
Makes meaningful interpretation of results	Discussion of results and conclusions are connected to the research question, hypotheses, and existing research. Identifies other possible interpretations and defends chosen interpretation.	Discussion of results and conclusions are connected to the research question, hypotheses, and existing research.	Limited ability to explain results (not connected to research question, hypotheses, and existing research)

SLO Appendix F- Supporting Documentation for SLO 2

SLO #2: Students will demonstrate knowledge of human physiology and its impacts on sports performance

SPOA 3110

Below are example questions that can be used to test students' knowledge of human physiology and its role in sports performance. Each student will answer 3-5 randomly assigned questions as part of a closed book exam in SPOA 3110 Responses will be scored using the rubric below.

1. Describe the ways in which age-related changes in cardiovascular function and muscle composition can impact an individual's athletic performance. Provide examples of sports where these age-related factors might play a significant role.
2. In what ways can diabetes affect an athlete's physiological responses during exercise? Discuss how these conditions might influence both aerobic and anaerobic performance. Compare and contrast how type I and type II diabetes would impact the athlete.
3. In this class, we discussed the physiology of the cardiovascular, neuromuscular, and pulmonary systems. Discuss how sex differences in the function of these systems leads to differences in performance between males and females. Consider specific examples and the potential implications for training and competition strategies.
4. Describe how each environmental condition (high altitude, high humidity and temperature, low temperature) can impact an athlete's physiological response during exercise? Select one environmental condition scenario below and provide a holistic strategy (factors related to training, nutrition, sleep etc.) to combat the imposed physiological stresses to maintain athletic performance.
    a. It is the 2nd game of the season and a football team from Wisconsin (average temperature is 70 F with 55% humidity), is scheduled to play a game next week in Miami FL (temperature is predicted to be 94 F with 72% humidity)
    b. It is the 4th game of the season and a soccer team from Charleston SC (elevation 19') is scheduled to play a game next week in Denver CO (elevation 5,276')
    c. It is playoffs and a lacrosse team from Phoenix AZ (average temperature is 62 F) is scheduled to play a game in Minneapolis MN (Average temperature is 22 F)
5. List and describe measurement techniques of 3 internal (physical characteristics) factors and 3 external (non-physical), that influence energy expenditure.

	Excels (2)	**Acceptable (1)**	**Unacceptable (0)**
Completeness	Thoroughly addresses all aspects of the question.	Addresses most key points of the question.	Addresses limited aspects of the question.
Accuracy	Information provided is accurate and well-supported with relevant examples and evidence	Mostly accurate information with minor inaccuracies.	Information is somewhat inaccurate or lacks proper support.
Depth of understanding	Demonstrates a deep understanding of concepts, providing insightful analysis and connections.	Shows a solid grasp of concepts with some analysis.	Limited understanding with minimal analysis.
Integration of knowledge	Integrates relevant concepts from multiple units within human physiology course.	Integrates concepts from a few units of the course but may miss some connections.	Limited integration of concepts; lacks depth.

SLO Appendix G- Supporting Documentation for SLO 3

SLO #3: Students will demonstrate acceptable oral and written communication skills

SPOA 4110

Oral Communications Rubric for B.S. in Sports Analytics

	Excels (2)	**Acceptable (1)**	**Unacceptable (0)**
Organization	Presentation is clear, logical and organized. Listener can follow line of reasoning.	Presentation is clear, logical and organized. Listener can follow line of reasoning.	Listener can follow presentation only with effort. Some arguments are not clear. Organization seems haphazard.
Style	Level of presentation is appropriate for the audience. Presentation is a planned conversation, paced for audience understanding. It is not a reading of a paper. Speaker is clearly comfortable in front of the group and can be heard by all.	Level of presentation is generally appropriate. Pacing is sometimes too fast or too slow. The presenter seems slightly uncomfortable at times, and the audience occasionally has trouble hearing him/her.	Aspects of presentation are too elementary or too sophisticated for the audience. Presenter seems uncomfortable and can be heard only if the listener is very attentive. Much of the information is read.
Communication Aids including Data Visualizations	Communication aids enhance the presentation. They are prepared in a professional manner. ● Font on visuals is large enough to be seen by all ● Information and data are organized to maximize audience understanding. ● Details are minimized so that main points stand out.	Communication aids contribute to the quality of the presentation. ● Font size is appropriate for reading. ● Appropriate information is included. ● Some material is not supported by visual aids.	Communication aids are poorly prepared or used inappropriately. ● Font is too small to be easily seen. ● Too much information is included. ● Unimportant material is highlighted. ● Listeners may be confused.

Written Communications Rubric for B.S. in Sports Analytics

	Excels (2)	Acceptable (1)	Unacceptable (0)
Organization	Information in logical, interesting sequence which the reader can follow.	Student has minimal organization but topic sentences are not present in all paragraphs.	Sequence of information is difficult to follow.
Content knowledge	Student demonstrates full knowledge (more than required).	Student seems to understand content but fails to elaborate.	Student does not have grasp of information.
Grammar and spelling	Work has no misspellings or grammatical errors.	Work has three to four misspellings or grammatical errors.	Work has seven or more spelling errors and/or grammatical errors.
Conclusion	Work's conclusion totally supports the thesis.	Work has support of thesis but not already stated.	Work does not support thesis.
References	Work displays the correct number of references, written correctly.	Reference section not completely correct.	Work displays no references.

SLO Appendix H- Supporting Documentation for SLO 4

SLO #4: Students will demonstrate acceptable critical, analytical thinking skills

SPOA 4120

Critical Thinking Rubric for B.S. in Sports Analytics

	Excels (2)	**Acceptable (1)**	**Unacceptable (0)**
Poses research questions	Student poses a research question that is clearly stated, relevant to the literature, important, and testable.	Student poses a research question that is clearly stated, but one of the following is missing: relevance to the literature, importance, and testability.	Research questions are not clearly stated and/or two of the following are missing: relevance to the literature, importance, and testability.
Synthesizes existing research	Clearly summarizes and critiques research. Applies the literature to the research question. The literature review does not deviate from the research question. Critically compares and evaluates competing perspectives.	Clearly summarizes and critiques research. Applies the literature to the research question. The literature review does not deviate from the research question.	Relevant research is missing from the literature review or the literature review deviates from the research question.
Makes meaningful interpretation of results	Discussion of results and conclusions are connected to the research question, hypotheses, and existing research. Identifies other possible interpretations and defends chosen interpretation.	Discussion of results and conclusions are connected to the research question, hypotheses, and existing research.	Limited ability to explain results (not connected to research question, hypotheses, and existing research)