SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS
COMMISSION ON COLLEGES
SUBSTANTIVE CHANGE PROSPECTUS
UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE
Undergraduate Certificate in Sports Analytics

Name of Institution: University of North Carolina at Charlotte	
Location: 9201 University City Blvd., Charlotte, NC 28223	
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List of Degrees

List degrees that the institution is authorized to grant. As a subset of each degree, list majors available.

Abstract

The University of North Carolina at Charlotte, Department of Kinesiology and School of Data Science proposes a new Undergraduate Certificate in Sports Analytics. The certificate allows students from any major to seek admission provided they meet the pre-requisite requirements. The Undergraduate Certificate will prepare students to engage in the expanding sports analytics industry that has grown to over four billion dollars annually. Additionally, with expanded sports franchise presence in the Charlotte area, there is a growing local need for graduates with this expertise.   The institution is well positioned to undertake this change. There are existing faculty members that already work with students on sports analytic projects, an existing student club devoted to sports analytics, existing course work in sports analytics, and a recent joint hire of a sports statistician between the School of Data Science and the Department of Kinesiology.

Based upon the current enrollment of the undergraduate Sports Analytics course, we believe an enrollment of 60 undergraduate students is realistic and will likely be primarily from students who are currently seeking degrees in Data Science or Kinesiology. Additionally, there are groups in the greater Charlotte area and in the University of North Carolina at Charlotte Athletic Department interested in working directly with students from this proposed concentration on experiential learning projects. The date of implementation is Spring 2022, and classes will be offered at the UNC Charlotte main campus in an ongoing basis.

Determination of Need and Program Approval

Alignment with University Mission
The mission statement of UNC Charlotte is:

"UNC Charlotte is North Carolina's urban research university. It leverages its location in the state's largest city to offer internationally competitive programs of research and creative activity, exemplary undergraduate, graduate, and professional programs, and a focused set of community engagement initiatives. UNC Charlotte maintains a particular commitment to addressing the cultural, economic, educational, environmental, health, and social needs of the greater Charlotte region."

The proposed Undergraduate Certificate would address key components of the mission statement, in particular the economic needs of the greater Charlotte area. Charlotte is experiencing an expansion of the sports industry with the addition of new professional franchises, the planned Olympic sports development facility in Kannapolis. All of these expansions, in addition to the existing sports infrastructure, drives a need for enhanced data analytics which can be provided by students prepared via the proposed program.

Alignment with Department of Kinesiology and School of Data Science

The proposed program aligns with the vision of the Department of Kinesiology. The vision includes a focus on experiential learning and critical thinking, as well as excellence in outreach in the local region. This program will create aligned student experiences and serve to prepare students for the expansion of sports industry in the Charlotte area. Additionally the program aligns with the mission of the School of Data Science which is to "develop and generate talent to meet market demand for professionals with domain expertise, a passion for data, deep analytical talents and strong communication skills".

Assessment of Need
The need for this Undergraduate Certificate is based upon several factors. First, in the Charlotte area there is an expanding sports and recreation industry that is reliant on data analysis. Existing centers such as the National White Water Center and franchises such as the Carolina Panthers, Charlotte Hornets, Charlotte Checkers, Charlotte Knights, Charlotte Hounds, and Charlotte Independence utilize data analytics to improve not only performance, but also marketing, merchandizing and ticket revenues. Motorsports teams are also prevalent in the Charlotte area, many with national headquarters; there are multiple motor speedway venues. NASCAR has a long history of using data analytics and has partnered with Universities to leverage data science students for internships. All together the sports industry injects more than two billion dollars annually into the local Charlotte economy, and there are major centers being developed in neighboring communities such as Kannapolis. Nationally, the sports analytics field has grown from a few hundred million dollars to over two billion dollars spent directly on analytics and this is projected to increase. The US Bureau of Labor is projecting a 27 percent growth in the Sports Analyst profession, with median wages of nearly $80,000 per year.

Additionally, at UNC Charlotte, there has been both a Sports Analytics course and student club. The student club has been in existence for a number of years and worked with the Universities athletics program on data science projects. The course has been at maximum capacity since its inception, and had to be offered in multiple sections recently to keep up with student demand. Both of these are evidence of interest among the UNC Charlotte students for preparation in sports analytics.

Therefore, the need for the program is based on both a strong labor market and local student interest. This Undergraduate Certificate will prepare students in multiple majors field (business, data science, kinesiology) to enter into this growing career field and be successful both in Charlotte and nationally.

Program Approval Process
The approval process for undergraduate courses establishes the review procedures for all new and modified courses. This process begins with the review and approval at the department level, proceeds through collegiate curriculum committees and deans before reaching the University Undergraduate Course and Curriculum Committee (UCCC). The UCCC is responsible for ensuring the quality and content of the curriculum, as well as the resulting course and curriculum approvals. Finally, any proposals to establish new certificates are reviewed through the same process noted above and by the University Faculty Council for approval and implementation. The UCCC approved the Undergraduate Certificate in Sports Analytics on April 2, 2021.

Faculty Involvement in Program Approval.
The proposed Undergraduate Certificate was first reviewed by the undergraduate curriculum committee in the Department of Kinesiology in the early fall of 2020. The committee reviewed, approved, and

moved the proposal on to the full faculty in the Department of Kinesiology for review and comment. After discussion, the proposal was voted on and approved by the full faculty in the Department of Kinesiology in mid-Fall of 2020. In parallel, the proposal was reviewed and approved by the Academic Advisory Board for the School of Data Science and the Provost and Vice Chancellor for Academic Affairs. A copy of the advisory board approval is provided.

Program Details

Course Requirements
The Undergraduate Certificate in Sports Analytics consists of 12 credit hours. Students must take the courses listed below to complete the program.

1. Required Analytics Core (9 credit hours)

    Core classes to address analytics techniques and research.

    1. DTSC 1110 Sports Analytics (3)
    2. KNES 4115 Undergraduate Research Methods in Kinesiology (3)
    3. KNES 3900 Undergraduate Research (3)

2. Electives Core (3 credit hours)

    Choose one from the following:

    1. DTSC 2110 Sports Business Analytics (3)
    2. KNES 2333 Baseball Through History and Playing I (1800s-1947) (3)
    3. KNES 2334 Baseball Through History and Playing II (1947-Present) (3)
    4. KNES 3100 Organization and Administration of Exercise Science (3)

Table 1. Schedule of Anticipated Course Offerings

Knowledge pursued	Course Number	Course Title	Fall	Spring
Analytics Core	DTSC 1110	Sport Analytics	X	X
	KNES 4115	Undergraduate Research Methods	X	
	KNES 3900	Undergraduate Research	X	X
Electives Core	DTSC 2110	Sports Business Analytics	X	X

	KNES 2333	Baseball... I		X
	KNES 2334	Baseball II		X
	KNES 3100	Organization and Admin.	X	

Course descriptions can be found in the attached.

Student Learning Outcomes
The Student Learning Outcomes (SLOs) for the program are as follows:

- SLO 1: Gain an understanding of basic statistical concepts and their applications in the sports world
- SLO 2: Understand the Scientific Method and Formulation of Research Questions.
- SLO 3: Develop the ability to recognize, formulate, and analyze decision-making in sports.

The SLO assessment plan is included in the attached.

Program Admissions and Graduation
To be eligible for admission to the Undergraduate Certificate program, students need to have passed one of the following statistics courses with a C or better: STAT 1220/1221/1222. Additionally, the student would need to have completed a basic programming course with a C or better (example: INFO 2130, INFO-3221, or ITSC 1110. Other courses may be accepted upon review). Students from all majors on campus will be welcome to apply for admission.

To graduate from the program all students must complete the required coursework with a 'C' or better earned in all courses.

Definition of a Credit Hour
The course and curriculum development process are governed by the Standing Rules of the Faculty Council. Faculty members in academic departments develop and complete the required steps in Curriculog, the University's online course and curriculum change system, for new courses and revisions to courses. As part of the proposal, faculty are asked to provide a draft catalog copy for the course which includes the amount of credit to be awarded. Undergraduate faculty must also submit a draft course syllabus that includes the number of credits. The departmental and collegiate curriculum committees are responsible for verifying the credit hours for new courses and revisions to courses based on documentation of the amount of work expected by faculty in the class.

Existing and new courses represent best practices of credit calculations nationwide by following the federal definition of Carnegie Units. It is recommended that faculty members include the Suggested Standard Syllabus Policies (p. 2). All departments are required to verify that the credit awarded for new

courses conform to federal and Commission policy and will indicate such through required steps and documentation submitted during the Curriculog course proposal process.

Program Oversight

The proposed program will be jointly overseen by the Dr. David Bellar, Chair of the Department of Kinesiology and Dr. Doug Hague, Director of the School of Data Science with oversight by Dr. Catrine Tudor-Locke, Dean of the College of Health and Human Services.

Dr. Catrine Tudor-Locke is the Dean of the College of Health and Human Services. She will review SLO reporting, enrollment and assessment data from the program reported by Dr. David Bellar and Dr. Doug Hague.

Dr. David Bellar is the Chair of the Department of Kinesiology. He will review program enrollment, and collect data on SLO's and prepare reports on program outcomes annually. He will also ensure adequate availability of KNES courses for students in the program.

Dr. Doug Hague is the Director of the School of Data Science. He will review all reports on program outcomes and supervise course assignments for DTSC courses required for the program. This includes the responsibility for reviewing student evaluations from the DTSC coursework and providing input on these through annual faculty evaluations.
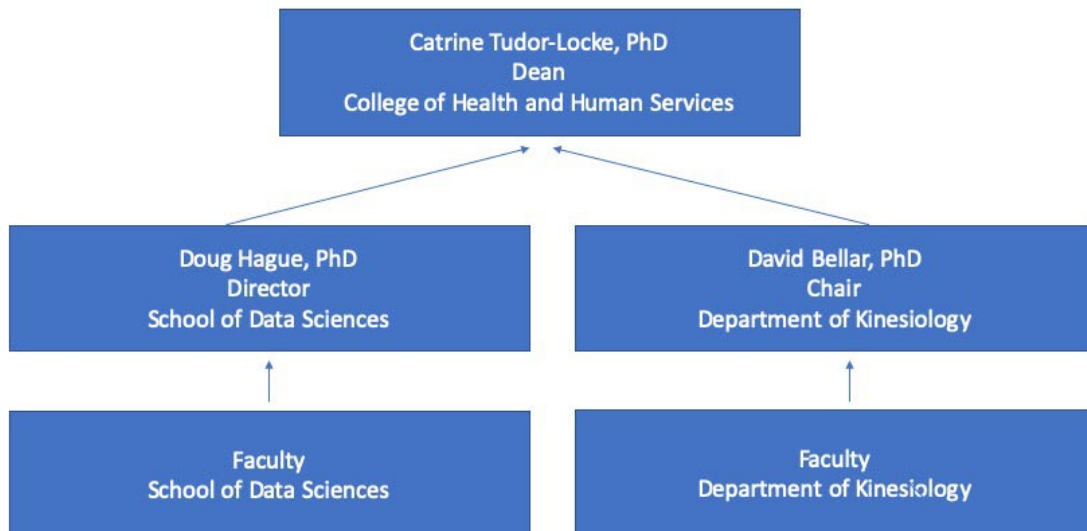

Figure 1: Program administration

Faculty Qualifications

Faculty who teach these Undergraduate Certificate courses are experience teachers, researchers and former coaches who are qualified to instruct and mentor students as they explore the field of sports analytics. The Undergraduate Certificate in Sport Analytics will be taught by five full-time faculty, one of whom is a former ESPN sport analyst, and supported by faculty members who have published in the discipline. The faculty have extensive connections to sport industry in the Charlotte area, and have already secured experiential learning opportunities for students interested in Sports Analytics.

The faculty members expected to teach in this program are identified on the faculty roster form. This demonstrates that the faculty possess the required credentials and/or competencies to teach in the program.

Course loads of the current faculty are sufficient to cover the courses required in the certificate. There will be no part time faculty or graduate assistants required for instruction of the program.

Library and Learning Resources
J. Murrey Atkins Library is the primary library at the UNC Charlotte and will be the main library for the Undergraduate Certificate in Sports Analytics. The Atkins library has 91 employees, including 35 faculty members and 56 support staff. The Atkins Library facilities contain approximately 285,000 square feet, most of which is devoted to the Library's million-volume collection. The Atkins Library facilities contain approximately 285,000 square feet, most of which is devoted to the Library's million-volume collection. The Library's main collections consist of materials in many formats: over 3.8 million volumes, including 1.2 million e-books, over 650 databases, and approximately 222,000 journals, the vast majority available electronically.

Students will have off-campus access to all of the resources provided on-campus through the Atkins Library's homepage. These resources include journal articles, workbooks, ebooks, print books and videos. They can request research assistance either in person, or by phone, chat, text or email from the Library's homepage. They may contact a research librarian who has specialty knowledge of their discipline area(s) for assistance with research or for help identifying and using the many electronic databases available. Research Guides are available electronically 24/7 for assistance with a specific course or particular subject area.

The present holdings of J. Murrey Atkins Library at UNC Charlotte are sufficient to support the instructional and research needs of the program. The number of individual monograph titles and volumes relevant to sports analytics are listed in the table below, organized by their Library of Congress subject headings.

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LC Subject Heading	Books	Videos	Journals
Sports	416	1401	399
Big data	424	59	574
Information visualization	100	58	6
Data analysis	23	10	74

Students in the Undergraduate Certificate are supported by the specialist librarian for Health and Human Services. In addition, interlibrary loan services is available to all students and faculty.

If students are unable to find a particular journal article or book within the library's own collection, they may request to have the item delivered from another library, either electronically or by mail. Articles take 24-48 hours to arrive, books take 5-7 business days. There is no charge for this service.

There are currently no plans to formally partner with other libraries within the UNC system to provide services for the students in the program.

Use of Technology
Multiple UNC Charlotte departments are involved in fostering, training, and supporting the use of technology to enhance student learning. The primary mission of the Center for Teaching and Learning (CTL) is to help faculty develop meaningful and pedagogically sound approaches to their teaching. The Center provides professional development workshops, software, and support to allow faculty to teach effectively with technology. Working in conjunction with the Center are Office of OneIT (OneIT) the Audiovisual Integration Support for Learning Environments (AISLE) and the Atkins Library.

The Center for Teaching and Learning (CTL) hosts the platform for the University's Learning Management System (LMS). Canvas is the center point for the delivery of technology in support of teaching. Every student enrolled at the University automatically has access to Canvas, which has online, chat, and telephone support systems available twenty-four hours a day. In addition, Canvas is the single point of entry for other important learning tools such as Video Content Management, Document Collaboration, Secure Testing, Synchronous Learning, Integrated Response Systems (clickers), and plagiarism detection. The Center for Teaching and Learning provides training to faculty who teach online and blended courses. The Center offers courses on Canvas, course design, Quality Matters, etc.

Working in conjunction with CTL is the OneIT. OneIT provides both the software and the training for students to make the best use of the technology resources available on campus. In addition, a wide variety of professionally developed training courses are available through Percipio.

The Atkins Library Information Commons (IC) staff provides online resources and classes for students in the Library. The curriculum ranges from foundational instruction for the first-year writing program to differentiated instruction for upper-level course in the WRDS major.

Audiovisual Integration Support for Learning Environments provides support for the video conferencing and teleclass facilities that support both traditional educational programs and distance learning

programs. The state-of-the-art technology for the classrooms on campus and ensures that faculty have access to modern tools such as smartboards and video capture. The Academic Media Production Team works with individual faculty to create custom, high quality, and engaging digital media elements for academic courses.

Additionally, faculty are provided with training in webinars, seminars, and a full range of workshops on utilization of electronic tools include Respondus, e-portfolios, and Webex, a videoconferencing tool. Students who may be working full or part-time and may be geographically removed from the Charlotte area will have structured access to faculty by phone and WebEx conferencing tools. Assistance is also provided by the Audiovisual Integration Team which designs and installs the systems in the learning and common spaces.

Student Support Services
The College of Health and Human Services maintains an advising center (https://health.uncc.edu/chhs-student-advising) for students. This center is organized under a full time director who oversees three full time advisors. The mission of the center is based upon a collaborative model of advising where students and advisors work together to develop plans.

The College of Health and Human Services partners with many units on campus to offer services that enrich and support the undergraduate student community. Working with offices in the Division of Academic Affairs and the Division of Student Affairs, students have access to a broad range of services that support their educational experience and success. Examples of university-level student support programs, services, and activities that support student learning and success include, but are not limited to:

- Dean of Students Office manages a variety of activities such as women's programs, new student programs, volunteer outreach, student conduct, off-campus student services, SAFE mentoring program, sorority and fraternity life, Niner Nation Family program, and veteran students outreach.

- University Center for Academic Excellence offers services 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 and graduate students. The UCAE also coordinates the 49er Rebound program, which offers support and academic skills courses to undergraduates who are placed on academic probation after their first term at UNC Charlotte.

- Disability Services ensures access to academic programs and campus facilities by providing verification of medical documentation, academic accommodations, counseling, testing, note-taking, and scholarships.

- University Career Center offers career assessment, internships, co-ops, service-learning, job preparation, and job interview opportunities. The CoA+A has a dedicated college liaison in the Career Center who collaborates with college leadership, faculty and advisors in addition to serving CoA+A majors in direct and significant ways.

- [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 materials are also available.

- [Multicultural Academic Services Office](#) is committed to assisting traditionally underrepresented populations in the awareness and availability of academic support services.

Physical Resources
The current physical facilities and ITS offerings are adequate to implement the program. The program will make use of the existing classroom facilities in Belk Gymnasium. There are multiple classrooms in this building that seat up to 40 students per section which will be adequate for this program. The program will also make use of software that is already licensed by the University for use by all students and faculty. This includes: JMP 15.0 Pro, IBM SPSS Statistics 27, NVivo, MATLAB, and SAS 9.4.

Financial Support
The United States Department of Education has imposed no limitations, suspensions, or terminations with respect to the Title IV student financial aid programs. UNC Charlotte operates on the electronic transfer/advance payment method with respect to its federal funds and has not been placed on the reimbursement method. It has not been obligated to post a letter of credit on behalf of the U.S. Department of Education or other financial regulatory agency. There have been no complaints filed with the Department of Education regarding UNC Charlotte, and there are no impending litigation issues with respect to financial aid activities. The University is not aware of any infractions to regulations that would jeopardize Title IV funding.

The North Carolina Legislature, as part of the overall State budget, allocates funding for the University of North Carolina system, including UNC Charlotte. Within the UNC Charlotte budget, the State allocates a building reserve fund to cover maintenance and operation of existing facilities (housekeeping, maintenance, information technology, utilities, security, etc.), administered by UNC Charlotte's division of Business Affairs. Day-to-day operating costs (office supplies, phone service, student workers, etc.) are funded through the division of Academic Affairs, under the direction of the Provost. The year one budget for the Undergraduate Certificate program is included as Table 2. It demonstrates that creating this new Undergraduate Certificate can be done without the reallocation of institutional resources or new allocations since the existing infrastructure will be used without reallocation.

Table 2: Estimated Year One Budget for Certificate in Advanced Dance Studies

Expenses	Reallocation of Present Institutional Resources (Academic Affairs)	New Allocations	Total
Personnel			

Department Chair – Kinesiology Administrative Time	$ 2,000.00	$0	$ 2,000.00
School of Data Science Faculty Instruction	$ 100,000	$0	$ 100,000
Advertising and Recruiting	$ 3,000.00	$0	$ 3,000.00
TOTAL ADDITIONAL COSTS ($)	$ 105,000.00	0.00	$ 105,000.00

No new faculty will be added for this program; however, an existing faculty line in the School of Data Science will be reallocated to teach required courses in the program.

Time will be required for the Chair of the Department of Kinesiology to administer the program which includes program enrollment, SLO data collection and report preparation, and the KNES course availability; the stipend is reflected in a reallocation of salary sufficient to cover the anticipated time commitment.

Marketing the program to potential, incoming and current students is necessary to raise awareness of the program. Thus, a small allocation is provided to allow for this.

No facility renovations are required to deliver this program. There will be no expenditures to external institutions or organizations for contractual or support services. Funding for equipment necessary to deliver the program has been expended and equipment is in place to deliver the program. Library resources have been budgeted/expended in advance of program initiation. Ongoing library appropriations are sufficient to support the program.

Evaluation and Assessment
Student Learning Outcomes
As part of the Annual Report, departments must submit an annual Student Learning Outcomes Assessment Plan and Report. For each program this report documents student learning outcome assessment plans (which consist of student learning outcomes, effectiveness measures, assessment methodology, and performance outcomes), assessment data, changes made based on assessment data, and the impact of changes on student learning. Student learning outcomes for programs offered through the online delivery mode are the same as for programs offered face-to-face. Student Learning Outcomes Assessment Plans and Reports from all colleges at both the undergraduate and graduate levels, and from online and face-to-face delivery modes, are required to be completed.

College Assessment Directors (CADs) are appointed to oversee the student learning outcomes assessment process in their respective Colleges. CADs work with department chairs and program coordinators on developing Student Learning Outcomes Assessment Plans and Reports, and documenting assessment data and the impact of changes on student learning. Also, CADs act as liaisons with faculty and Office of Assessment and Accreditation (OAA) team members to improve the quality and completion of reports. OAA reviews and provides feedback on the evaluation and improvement of

program student learning outcomes; the Office also conducts faculty and staff professional development workshops.

Planning

Each year, each division develops expected outcomes and measurement plans to assess the accomplishment of its goals and objectives. Upon completion, the units subsumed in each division will align their plans with their division's plan. At the division level, vice chancellors use report templates and scorecards to note the accomplishment of division goals and objectives. The Institutional Effectiveness Oversight Committee (IEOC) uses these completed reports and scorecards to annually review and prepare a University scorecard of findings to the Chancellor for discussion with his Cabinet.

As indicated previously, all colleges and departments within Academic Affairs complete five-year strategic plans. In addition, colleges and departments submit an Annual Report which highlights the major accomplishments for the year. Strategic Plans and Annual Reports from the College of Health and Human Services and the Department of Kinesiology are provided. These reports are used to complete the Academic Affairs Annual Highlights.