

Abilene Approval Chart for Curriculum Changes

A = Approve I = Information Item R = Respond In Writing

Course Number: SDS 475 - Sports Analytics

or Degree Plan(s):

		Dept./School	College	Dean	TEC	AUAC/Grad	Provost
	Campus-Level Academic Review¹						
	Change to a Course Include signatures from all chairs/program directors for cross-listed courses. ¹						
1.	Title (description unchanged)	A	A	A	I	I	I
2.	Description (not affecting content)	A	A	A	I	I	I
3.	Course term(s)	A	I	A	I	I	I
4.	Content (change of course outcomes)	A	A	A	I	I	A
5.	Number of credit hours	A	A	A	A	A	A
6.	Course number within the hundred	A	A	I	I	I	I
7.	Course number beyond the hundred	A	A	A	A	A	A
8.	Prerequisites	A	A	A	I	I	I
9.	Course restriction (e.g., majors only, junior standing)	A	A	A	A	A	A
10.	Level change (U to G or G to U)	A	A	A	A	A	A
11.	Cross list course	A	A	A	A	A	A
12.	Department of record	A	A	A	A	A	A
13.	Open or close a course	A	A	A	A	A	A
	Change to a Degree Plan						
14.	Educational Program — Revise	A	A	A	A	A	A
15.	Educational Program — Adopt/revise admission requirements	A	A	A	A	A	A
16.	GPA — Revise program-required GPA	A	A	A	A	A	A
17.	Minor — Revise	A	A	A	A	A	A

		Dept./School	College	Dean	TEC	AUAC/Grad	Provost	Campus Faculty	Senior VPAA	President
	Full Review									
	Change to Catalog Information (for Campus)									
18.	General requirements for Bachelor's and Associate Degrees	-	-	-	-	A	A	A	A	I
19.	Policies governing academic probation and suspension	-	-	-	-	A	A	A	A	I
20.	Requirements for graduating with honors	-	-	-	-	A	A	A	A	I
	Change to a Degree Plan									
21.	Educational Program — Add or Discontinue ²³	A	A	A	A	A	A	A	A	I
22.	Educational Program — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I
23.	Minor — Add or Discontinue	A	A	A	A	A	A	-	A	I
24.	Minor — Discontinue (Provost-proposed)	R	-	R	A	A	A	-	A	I
25.	Degree — Add or Discontinue	A	A	A	A	A	A	A	A	I
26.	Degree — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I

		Dept./School	College	Dean	AUAC	Provost	UGEC	University Faculty	Senior VPAA	President
	Change to General Education Requirements for Undergraduates (System)									
27.	Change course outcomes of an included course	A	A	A	A	A	A	-	A	I
28.	Add or drop a required course from the General Education Requirements	A	-	A	-	A	A	A	A	I
29.	Add or drop a course from a menu within the General Education Requirements	A	-	A	-	A	A	-	A	I
30.	Comprehensive revision of General Education Requirements	-	-	-	-	A	A	A	A	I

Notes

² Any change to a cross-listed course requires the signature of both department chairs or program directors overseeing the course to ensure that the courses stay in sync. This includes courses taught at other campuses (e.g. BIBL 101 and BIBO 101).

³ For undergraduate majors, a minimum of 30 hours is required. These programs must have a minimum of 6 elective hours, unless the requirements of external accrediting bodies make it impossible. Master's programs must include a minimum of 30 hours, and doctoral programs must include a minimum of 30 hours beyond the master's.

⁴ When a department/school or dean proposes closing a program, approval routing follows the typical process beginning with the department/school. An administrative proposal by the provost or senior vice president for academic affairs would follow the "provost-proposed" routing on the chart.

Updated 8/1/2023

Department/School(s)

John Ehrke

02/06/2026

Chair Signature

Date

Chair/Program Director Signature

Date

College Academic Council(s)

Kathleen Ren

03/19/2026

Chair Signature

Date

Chair Signature

Date

Dean(s)

Charles M. Minter

3/30/2026

Signature

Date

Signature

Date

Teacher Education Council

Signature

Date

**Campus Academic Council:
Abilene Undergraduate or Abilene Graduate**

Signature

Date

Provost

Signature

Date

University General Education Council

Signature

Date

University Faculty

Abilene Faculty Senate Chair signature

Date

Dallas Faculty Council Chair signature

Date

Senior Vice President for Academic Affairs

Signature

Date

President

Signature

Date

Abilene New Course Application

You may delete the preceding instructional pages before submitting an application.

Course ID (<i>Subject Code and Number</i>)	SDS 475
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1. Systems and Catalog Information Complete each item.

A	Course Developer	John Ehrke
B	Course Instructor	John Ehrke
C	Course Title	Sports Analytics
D	Course Abbreviation for Banner if title is more than 30 characters	
E		OSE - Onstead Science and Engineering ▾
F		MATH - Mathematics ▾
G	Number of Credit Hours	3 ▾
G1	Number of Lecture Contact Hours	3 ▾
G2	Number of Lab Contact Hours	0 ▾
H	Is the course for a fixed or variable number of credit hours?	Fixed ▾ If variable, explain rationale:
I	Is the course repeatable for additional credit?	No ▾
J	Maximum total number of credit hours a student can earn for this course	3
K	Course Schedule Type	Lecture (LEC) ▾ See Schedule Type definitions in the Reference section.
L	Number of Faculty Workload Hours	3 ▾
M	Grading Mode	Standard ▾
N	Maximum Enrollment	20

O	Catalog Description (50 words or less)	An introduction to statistical methods and consulting aimed at analyzing sports using observational data on players and teams. Study sports related problems, utilize statistical tools to find solutions and interpret those results to sports professionals. Participate in a semester-long sports analytics project in partnership with an ACU athletics team.
P	List any prerequisites (course/s, test scores, class standing, major, etc.)	MATH 377
Q	List any corequisites (these <i>must</i> be taken at the same time; note that a single requirement cannot be both a prerequisite <i>and</i> a corequisite)	
R	If the course is cross-listed, specify the subject code and course number of the other course	
S	Does this course require any additional student course fees?	☐ No If yes, attach a completed course fee form .
T1	Will the course be offered in fall terms?	☐ No
T2	Will the course be offered in spring terms?	☒ Yes, odd years
T3	Will the course be offered in summer terms?	☐ No
U	First semester this course will be offered under a new Course ID. <i>May not be earlier than the coming fall semester.</i>	Spring 2027
V	Is this course required for a program(s)?	☒ Yes If yes, attach a completed curriculum proposal to change the program(s).
W	Should the addition of this course be retroactively applied to the degree plan it supports? <i>This is rare, and rationale should explain compelling extenuating circumstances.</i>	☐ No If yes, provide rationale:

X	Has this course been offered as a Special Topics course? <i>New courses are not required to be taught as Special Topics courses prior to approval.</i>	No ▾ If yes, provide course ID, term, and enrollment:
Y	List any courses in which the content overlaps the proposed course. (Course ID and Name). <i>Attach a statement from the instructor/dept chair of the existing course justifying the new offering.</i>	

2. Curriculum

- A. Explain any effects of this course on any degree plans. If the addition of the course alters program requirements, submit a separate [Approval Chart for Curriculum Change](#) to update the program.
- B. Justify the addition of this course to the current curriculum, explaining the gap it meets.

3. Course Design

- A. Audience and Course Goal
 1. Describe the intended audience, including prerequisite skills.

As of right now the course is intended for statistics and data science majors as well as interested math/science majors who have completed MATH 377. If there is demand to open up the course to a wider audience we will have to reconsider the prerequisite. This course is intended to be technical and rigorous, not a survey course. We do however, have plans to have several sports professionals as guest speakers and contributors for the course.

2. State the overarching course goal(s) in performance terms.
 - Learn about analytics trends and techniques exploring how the world of analytics is reshaping the sporting landscape.
 - Examine readings and case studies in the world of sports analytics to build a useful library of methodologies for application to specific analyses in sports.
 - Develop the ability to translate, analyze and interpret raw sports data into actionable insights for coaches, players and other team personnel.
 - Build skills in data mining, programming (R, Python) and visualization.
 - Create models for forecasting player performance, win probabilities, and odds as well as quantify player and team performance using various metrics.
- B. Student Learning Outcomes and Measurements

	Student Learning Outcome	Measurement
1	Reinforce statistical modeling techniques of exploratory data analysis, probability and regression in sports specific applications.	Consultation Project Lab Assignments Case Studies
2	Develop competency in R or Python for data cleaning, manipulation and modeling.	Consultation Project Lab Assignments
3	Understand sport-specific data such as player tracking, biomechanics, and wearable sensor technology.	Consultation Project Lab Assignments Case Studies
4	Apply predictive modeling and simulation to forecast athlete performance or game outcomes informing game management and coaching decisions.	Consultation Project Lab Assignments Case Studies

C. Text and Resources

Give the full publication information of the textbook/s and other required resources and outside readings. For **combined undergraduate/graduate** courses, make two lists:

A. full publication information; label **Undergraduate**.

Required reading: Albert, Jim, Mark E. Glickman, Tim B. Swartz, and Ruud H. Koning, editors. *Handbook of Statistical Methods and Analyses in Sports*. 1st ed., [CRC Press](#), 2017.

Recommended readings:

- *Sprawlball: A Visual Tour of the New Era of the NBA* - Kirk Goldsberry
- *The MVP Machine: How Baseball's New Nonconformists Are Using Data to Build Better Players* - Ben Lindbergh, Travis Sawchik
- *The Book: Playing the Percentages in Baseball* by Tom Tango
- *Smart Baseball: The Story Behind the Old Stats That Are Ruining the Game, the New Ones That Are Running It, and the Right Way to Think About Baseball* by Keith Law
- *Mathletics: How Gamblers, Managers, and Sports Enthusiasts Use Mathematics in Baseball, Basketball, and Football* by W. Winston
- *Basketball data science: With Applications in R* by P. Zuccolotto and M. Manisera
- *Football analytics with Python & R* by E.A. Eager and R.A. Erickson

B. full publication information; label **Graduate**.

4. Supporting Documentation

Required of all applications	
1	Approval Chart for Curriculum Changes
2	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
4	Library — Submit new course application and syllabus to the Library dean's office. Attach the Library's memo.
Attach if applicable	
5	Content Overlap — Include one document for each course you listed in Section 1Y. Attach statement from instructor/dept chair of existing course justifying the new offering.
6	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location(s).
7	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
8	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.
9	Justification — Attach any documents to which you refer in Section 2B.



Onstead College of Science and Engineering
Department of Mathematics

SDS 475
Sports Analytics
Section 01
Spring 2027

Syllabus

Contact Information

Instructor: Dr. John Ehrke, Associate Professor of Mathematics

Email: john.ehrke@acu.edu

Phone: 325-513-4242 (cell), 325-674-2162 (office)

Office: Onstead Science Center 173

Instructor Availability

It is my responsibility as the instructor to provide timely responses to all email or personal communications in a respectful and professional manner. In kind, the same applies to student communications with the instructor.

In-Person Office Hours: Monday 3-5 PM, Wednesday 2-4 PM, Tuesday 1:30 - 3 PM

Zoom Office Hours: Subject to availability

Join Zoom Meeting

<https://acuonline.zoom.us/j/8095293581>

Meeting ID: 809 529 3581

Mission Statements

This course supports ACU's mission statement of preparing students for Christian service and leadership throughout the world by providing students a foundational understanding of the mathematical principles such as problem solving and decision making, as well as exposing students to the role of mathematics in a Christian worldview.

The mission of the Onstead College of Science and Engineering is to explore and understand God's creation in the natural world and apply the acquired knowledge and principles to address its issues and challenges.

The mission of the Department of Mathematics is to educate students to be quantitative and analytical thinkers in preparation for Christian service and leadership throughout the world.

Course Information

Credit Meeting and Hours Information

This is a 3 credit hour course that meets once per week on Monday, Wednesday afternoons.

Room: TBD

Time: Monday, Wednesday 3:00 - 4:20

Course Description and Purpose

SDS 475 - Sports Analytics (3-0-3) Spring, odd years. An introduction to statistical methods and consulting aimed at analyzing sports using observational data on players and teams. Study sports related problems, utilize statistical tools to find solutions and interpret those results to sports professionals. Participate in a semester-long sports analytics project in partnership with an ACU athletics team.

Prerequisites: MATH 377

This course is not repeatable for course credit.

Course Goals

- Learn about analytics trends and techniques exploring how the world of analytics is reshaping the sporting landscape.
- Examine readings and case studies in the world of sports analytics to build a useful library of methodologies for application to specific analyses in sports.
- Develop the ability to translate, analyze and interpret raw sports data into actionable insights for coaches, players and other team personnel.
- Build skills in data mining, programming (R, Python) and visualization.
- Create models for forecasting player performance, win probabilities, and odds as well as quantify player and team performance using various metrics.

Course Materials

During the semester we will find use out of several readings. One is required and the others are suggestions for your final exam book report.

Required reading: *Handbook of Statistical Methods and Analyses in Sports* by Jim Albert, Mark Glickman, Tim B. Swartz, Ruud Koning.

Recommended readings:

- Sprawlbball: A Visual Tour of the New Era of the NBA - Kirk Goldsberry
- The MVP Machine: How Baseball's New Nonconformists Are Using Data to Build Better Players - Ben Lindbergh, Travis Sawchik
- The Book: Playing the Percentages in Baseball by Tom Tango
- Smart Baseball: The Story Behind the Old Stats That Are Ruining the Game, the New Ones That Are Running It, and the Right Way to Think About Baseball by Keith Law
- Mathletics: How Gamblers, Managers, and Sports Enthusiasts Use Mathematics in Baseball, Basketball, and Football by W. Winston
- Basketball data science: With Applications in R by P. Zuccolotto and M. Manisera
- Football analytics with Python & R by E.A. Eager and R.A. Erickson

MATH VDI: You will have access to the Mathematics Virtual Lab (VDI) for completing assignments in the course. Go to <https://vlab.acu.edu>. You can either download an application to install on your computer/device which will allow you to connect to the VDI remotely, or you can connect through the browser.

For more information, go to <https://support.acu.edu/TDClient/1963/Portal/KB/ArticleDet?ID=136951> to find out how to access the virtual lab. Alternatively, students can choose to download their own Python distribution on a laptop and bring that with them to class. Instructions for obtaining your own distribution and installing Jupyter notebooks will be provided in class.

Python and R: For this class we will use Python 3 or R for all programming work. Python can be obtained at <https://www.python.org/downloads>. We will be using Google Colab or R Studio for all in class work and demonstrations. All work will be submitted as pdf files exported from .ipynb files in Colab or as pdf files from R Studio.

Learning Management System: This course will make use of the Canvas learning management system (LMS). Canvas can be accessed through the myACU portal and will host assignments, discussions, and a variety of lecture resources including links to slides and videos. Canvas also features a course calendar with due dates for various assignments as well as class prep lists. We will reference Canvas early and often throughout the semester.

Course Competencies

The course objectives below describe the outcomes of the course in terms of specific and measurable actions, capabilities, or skills students will be able to perform as a result of experiences in the course.

Course Competencies	Developing these Competencies
Demonstrate statistical modeling techniques of exploratory data analysis, probability and regression in sports specific applications.	Consultation Project Lab Assignments Reading Discussions

Develop competency in R or Python for data cleaning, manipulation and modeling.	Consultation Project Lab Assignments
Understand sport-specific data such as player tracking, biomechanics, and wearable sensor technology.	Consultation Project Lab Assignments
Apply predictive modeling and simulation to forecast athlete performance or game outcomes informing game management and coaching decisions.	Consultation Project Lab Assignments

Course Assessments

This course utilizes a standard percentage-based grading system allowing students to earn points from various assessments throughout the semester. Your grade in the course will be based on the following tiers and assignments at semester's end.

Percentage Grade	Letter Grade Received
90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

Assessment	Number	Percent
Lab Assignments	4	40%
Consultation Project	1	40%
Case Studies	4	20%
Totals	9	100%

Description of Assessments

- **Lab Assignments (40%)** There will be four lab assignments to be completed in R or Python during the semester. A full lab file with details for completion will be provided. The goal of these lab assignments are to allow for practice with the topics of the course and give students an opportunity to develop their own portfolio of work.
- **Consultation Project (40%)** Your work with an ACU sports team will culminate in a presentation and full technical report delivered to the sport professional stakeholders. Your work will be evaluated by the course instructor, an outside professional partner, and a member of the team/coaching staff to which the problem is delivered. Rubrics to assess your work will be provided and discussed during class.
- **Case Studies (20%)** Examining case studies are your opportunity to see how sports analytics tasks are cultivated in actual professional settings. They serve as a springboard for discussion and a chance to reflect on the approach and results. Students will respond to discussion prompts and submit an analytics review of each study. This course features four case studies evenly distributed throughout the semester.

- Case Study: NBA Player Load Management & Injury Prevention
- Case Study: Has the Pitch Clock Increased Pitcher Injuries?
- Case Study: Fan Engagement: Expanding the Miami Dolphins' Female Fan Base
- Case Study: Identifying Undervalued Talent: The Brighton Model of Transfer Market ROI in the Premier League

Course Policies and Expectations

Classroom and Communication Policies

Make Up Policy

During the semester, many assignments will have due dates posted on Canvas and announced in class. The purpose of a due date is to give you a timeline within which to work and allow for formative assessment of your work. An assignment, once due, will not be accepted under any circumstance if any of the following have occurred:

- The assignment is not submitted before an answer key is posted.
- The assignment is not submitted before being closed. This applies to Canvas discussions and any assignments completed in Learning Catalytics or in an online homework portal. These have rigid closure times and once closed will not be reopened.
- The assignment is not submitted before grading begins.
- In addition, assignments will incur a 10% penalty for each of the following infractions that occur. This includes all assignments in the course - including major assignments - so be careful to follow all given instructions precisely.
- Assignments not turned in on time will receive a 10% penalty for each day it is late.
- Assignments turned in where instructions are not followed will receive a 10% penalty for each infraction.

Penalties are additive, rather than multiplicative, so if an assignment is turned in 2 days late and an instruction was not correctly followed, then there are three infractions for a total penalty of 30%, meaning the highest grade the assignment could receive is a 70%. (Effectively, I will multiply whatever grade you earn by 0.7 to determine the adjusted grade in this case.)

Please note that you are responsible for working with your group on collaborative assignments -- like the modeling projects -- even if you are not in class on the day groups are assigned. Failure to work with your group in a good faith manner will render you ineligible for credit with the rest of your group. Any group wishing to dismiss a member of the group for inaction must inform the instructor at least three days before the due date. You may opt to complete the assignment on your own for credit if you are dismissed from a group.

In the case of extenuating circumstances, such as illness, injury or other personal emergency you can request an extension for assignments. Any such requests must be made in advance of the due date or class date; requests made after the due date or the start of class where a quiz is taken will not be honored. This means that if you have a conflict that prevents you from attending class to complete an assignment you must notify the instructor before class begins and arrange a time/date to make up the assignment. This policy applies to all assignments including exams/projects. Please note that some

assignments cannot have extended due dates and will require you to complete the assignment early if there is a conflict.

Finally, you are ultimately responsible for ensuring that your grade in the course is being calculated correctly according to this syllabus and that there are no missing or incomplete grades in the Canvas gradebook. The instructor will make every effort to keep the gradebook up-to-date and accurate but mistakes can sometimes be made. Please be diligent in taking ownership of your grade and performance in this course.

Attendance and Drop Policy

Your regular attendance is both necessary and expected. You are responsible for all material covered while absent and will be expected to take regularly scheduled exams and are responsible for turning in work on the assigned dates. Attendance will be recorded at the beginning of each class. If you come in after attendance is taken you will be counted absent. So make every effort to arrive in class on time, prepared for class. Only university approved absences can exempt you from being counted absent.

Per university policy, university approved absences must be cleared with the instructor one week in advance. Make your sponsors aware that failure to comply with this policy will affect your attendance record in this class.

If you need to drop this class, please discuss it with your instructor first. The **instructor will never initiate a drop** so it is your responsibility to make an informed decision when it comes to dropping or not dropping this course.

Academic Integrity Policy

The most powerful motive for integrity and truthfulness comes from one's desire to imitate God's nature in our lives. As a community of Christian students and scholars, we are each responsible to expect behaviors from each other consistent with the nature of God, to respect the community, and to respect ourselves.

Expectations of academic honesty and integrity extend to both university employees and students. Every member of the community is responsible for protecting the integrity of learning, scholarship, and research. Being responsible requires action against violations in spite of peer pressure, loyalty, or compassion. Individuals must take responsibility for their own conduct and discourage misconduct by others.

Definition of Academic Integrity

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Academic work includes but is not limited to reading assignments, homework assignments, assessments, examinations and tests, attendance at required out-of-class activities, written or oral presentations, and laboratory experiments and research.

Violations of academic integrity and other forms of cheating involve the intention to deceive or mislead or misrepresent and therefore, are a form of lying. Specific examples of violations of academic integrity in this course include, but are not limited to, the following:

- Submitting for credit, in whole or in part, the work of others.
- Receiving, giving, or using unauthorized aid on an examination, test, quiz, or assignment (e.g., texting).
- Viewing the answers of a nearby classmate during an examination, test, quiz, or assignment.
- Having inappropriate notes/practice work available during an examination, test, quiz, or assignment.
- Obtaining examination, test, or quiz questions before the examination, test, or quiz is given.
- Accessing printed copies or electronic copies of formulas and/or notes during an examination, test, quiz, or assignment without instructor approval.
- Failure to give credit to sources used in a work in an attempt to present the work as one's own.
- Submission of paper(s), project(s), or assignment(s), in whole or in part, obtained from any source, such as a friend, research service, or club paper file, as one's own.
- Allowing other members of a group to provide a disproportionate fraction of a required group project or activity.
- Claiming credit for an attendance or service activity without attending or performing the activity.
- Written or oral presentation of falsified materials and facts, including but not limited to the results of interviews, laboratory experiments, and field-based research.

Consequences of Breach

Violations of academic integrity may result in, but are not limited to, the following consequences:

- A first offense will result in a grade of 0 on the assignment in which the violation of academic integrity occurred.
- You will be permitted to remain in the class after the first offense of being found in violation of the academic integrity policy.
- A second violation in a class will result in an automatic grade of F in the course.
- All violations of academic integrity will be reported to the Dean of the College of Arts and Sciences and the Dean of Students in the Student Life Office.

Appeal Process

If you would like to appeal a decision, then please follow this link to file an appeal:

<https://acu.edu/office-of-the-provost/academic-policies/>

Generative AI: As generative AI technology continues to advance and transform various industries and aspects of society, its application in academic settings presents significant challenges. In particular, the role of AI in this mathematics course must be approached with caution.

This course is designed to build your computational, reasoning, and problem-solving skills through rigorous, step-by-step practice. Relying on AI for these tasks can undermine the learning process by bypassing essential problem-solving experiences and limiting opportunities for personal growth and authentic intellectual development. At ACU, our focus is on fostering deep

learning and developing future leaders, which AI cannot replace.

Therefore, the use of generative AI to solve mathematics problems and present them as your own work is strictly prohibited. Additionally, AI-generated content is not permitted for writing or reflection assignments. While you may use AI tools for editing or providing feedback, they should not be used to produce the core content of your submissions.

For any other uses of AI, please consult with your instructor beforehand, as unauthorized use may be considered a violation of academic integrity.

Student Opportunities, Advocacy, and Resources (SOAR): SOAR partners with faculty, staff, parents and students to assist ACU students and connect them to resources available to support their path to success. For more information about SOAR or to make a SOAR recommendation, see <https://acu.edu/soar-program>.

Disability Accommodations

Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodation, you must be registered with the Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call our office directly at 325-674-2667.

The ACU website provides more information at <https://acu.edu/about/uap/overview>.

Medical and Mental Care

As a student, you may experience a range of issues that can cause barriers to learning: strained relationships, increased anxiety, alcohol/drug dependence, depression, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance if not addressed. ACU is committed to supporting students addressing these concerns.

You can contact the Medical Care and Counseling Center at counseling@acu.edu, or by calling 325-674-2626. In addition, you can access free confidential counseling services through the Timely Care app (search *timely.md acu*) or calling (833) 484-6359.

Anti-Harassment Policy

As a professor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a professor. It is my goal that you feel able to share information related to life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. When I am not able to keep your information confidential, I will only share it with responsible administrators on campus who can provide you with services and

resources. I am required to share with the Title IX Coordinator information regarding sexual misconduct or harassment, dating or domestic violence or stalking that you report to me. If you would prefer to share information in a confidential setting, I encourage you to speak with someone in the [ACU Counseling Center](#). All of your options are available for review by clicking on the link to ACU's [policy](#).

Title IX Policy: At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing and responding to sexual misconduct against any member of the ACU community. The full Title IX policy and process can be found at <https://acu.edu/human-resources/title-ix-and-sexual-misconduct-information/>.

Course Schedule

Week	Topic	Assignments
Week 1	- Course Introduction - Overview of Sports Analytics - Spring Sports Project (Preparation)	
Week 2	- Spring Sports Project (Consultation) - Using Publicly Available Data - Sabermetrics	Case Study: Has the Pitch Clock Increased Pitcher Injuries?
Week 3	- Models Based on Seasonal Data - Models Based on Play-by-Play Data - Cluster Analysis	Lab Assignment - The Baseball Pythagorean Theorem
Week 4	- Predictive Models - Pattern Detection - The Idea of "Clutch" and "Streakiness"	
Week 5	- Fan Engagement - Front Office Considerations - Player Acquisition	Case Study: Expanding the Miami Dolphins' Female Fan Base
Week 6	- Spring Sports Project (Check-In) - Situational Football Analytics	Lab Assignment - 4th Down Decision Making
Week 7	- Optimal Decision Making: Using Expected Points - Optimal Decision Making: Using Win Probability	
Week 8	- Predicting Player Success, The NFL Draft - Hall of Fame Entry, Analyzing Player Legacies	Case Study: Identifying Undervalued Talent, Brighton Model for Player Acquisition
Week 9	- Spring Sports Project (Check-In) - Consultation Project Group Work	Lab Assignment - March Madness Predictions
Week 10	- Guest Lecturer - Austin Bayse - Data Engineer with Hudl - Models using Player Tracking Data	
Week 11	- Basketball Analytics - Probability Models for Shooting	
Week 12	- The +/- Statistic - Possession Based Player Performance - Optimal Strategy in Basketball	Case Study: NBA Player Load Management and Injury Prevention
Week 13	- Referee Bias in Football - Calling Balls/Strikes in Baseball - Home Advantage	Lab Assignment - Home Advantage in the Playoffs
Week 14	- Spring Sports Project (Check-In) - Consultation Project Group Work	
Week 15	- Consultation Project Group Work	Consultation Project Due

ABILENE CHRISTIAN UNIVERSITY

LIBRARY

MEMORANDUM

DATE: FEBRUARY 10, 2026
TO: Dr. John Ehrke
FROM: Mark McCallon, Associate Dean for Library Services
RE: New Course Application – SDS 475 – Sports Analytics

After reviewing the course syllabus, the Library is able to support the proposed course. Please contact Mark McCallon (mccallonm@acu.edu) if additional library resources are needed for the course. Thank you for the opportunity to evaluate the course syllabus.



February 11, 2026

Dr. John Ehrke
Associate Professor of Mathematics, Department Chair
Department of Mathematics
Onstead Science Center 173
(325) 674-2162

Re: Sports Analytics (SDS 475)

Dear Dr. Ehrke,

Thank you for the submission of SDS 475: Sports Analytics for review. I have reviewed it based on the ACU Syllabus Guidelines. I found the syllabus to meet all aspects of the checklist.

Please note that this letter is intended as a reference, which will be read by the department chair and council members, who may also have questions or comments of their own. If you have any questions, please feel free to let me know.

Please also let me know if we can help in the design and facilitation of this course.

Sincerely,

A handwritten signature in black ink, appearing to read "Amos Gutierrez".

Dr. Amos Gutierrez
Director of Instructional Design, Adams Center