



SCE 6315
Teaching Elementary School Science
54767 001
Summer 2026

Instructor Name

Nicole Holman

Nicole Holman, Ph.D.

University Course Description

This course promotes the development of pedagogical practices for the concepts, materials, and methods that comprise a robust foundation for the elementary school science classroom. Students enrolled in this course will become proficient in planning, writing, implementing, and evaluating science instruction, as specified in the Florida Elementary Education Subject Area Competencies Science 1, 2, 3, 4, and 5. Through a variety of learning experiences, an enhanced understanding of the nature of science and inquiry-based science teaching will emerge.

Course Prerequisites

Prerequisite(s):

Corequisite(s):

Course Format

This Summer B course is structured to maximize learning in a compressed timeframe:

- **Weeks 1–2 (Asynchronous):**
Foundational content, including the nature of science, inquiry-based teaching, and the 5E model, is front-loaded through guided modules.
 - **Weeks 3 & 5–6 (Synchronous Online):**
Live sessions focus on application of course concepts through collaboration, discussion, and practice teaching.
 - **Week 4 (Asynchronous):**
Independent application and project development, allowing flexibility for deeper work on major course assignments.
- Students are expected to remain actively engaged in both asynchronous and synchronous components.

Student Learning Outcomes

The specific goals for the semester are that students will be able to:

- Demonstrate understanding of the central concepts (content), tools of inquiry (process skills), and structure of science (the nature of science) appropriate to teaching at the K-6 level [*FEAP 3.b, 3.c. **FLC 22.2, 23.4, 24.10, 25.1, 25.2, 25.4, 25.5, 26.1. ***ACEI 2.2, 3.1. ****USF CF 2, 3]
- Demonstrate understanding of the social, intellectual, and personal development of students and recognize the needs, interests, and abilities of students in regard to science at the K-6 level [FEAP 1.b, 2.b, 2.g, 2.h, 2.i, 3.h, 4.d. FLC 1.9. ACEI 1.0, 3.1, 3.2. USF CF 5, 6]
- Demonstrate knowledge of and ability to critically evaluate and utilize contemporary science standards and curriculum materials for science education [FEAPs 1.a, 1.d, 4.b, 5.f. FLC 4.6. ACEI 3.1 USF CF 4]
- Demonstrate knowledge of and ability to plan and implement a variety of instructional strategies and assessment techniques for teaching science inquiry through hands-on, minds-on activities that foster scientific “habits of mind” and promote scientific literacy [FEAPs 1.c, 1.f, 2.i, 3.a, 3.b, 3.e, 3.f, 3.g, 4.a, 4.c. FLC 1.5, 1.10, 3.5, 4.1, 4.2, 4.3, 5.2, 27.1, 27.2, 27.3. ACEI 2.2, 3.1, 4.0. USF CF 2, 4]
- Demonstrate the capacity to create a positive environment that encourages science learning by modeling the attitudes and dispositions of scientific inquiry [FEAPs 2.a, 2.c, 2.f, 2.h, 3.i. ACEI 3.3, 3.4, 3.5. FLC 5.2]
- Demonstrate the capacity for collegiality, reflective practice, and professional growth in regard to science teaching [FEAPs 5, 6. ACEI 1.0, 3.1, 5.1, 5.2. USF CF 2]
- ESOL PS 3.1 – ESL/ESOL Research and History (base all accommodations on research practice)

- ESOL PS 3.2 – Standards-Based ESL and Content Instruction (teach English through science)
- ESOL PS 4.1 – Planning for Standards-Based Instruction of ELLs (plan for multilevel instruction for ELLs)

Course Objectives

- The development of students' own science pedagogical knowledge (organizing the classroom, creating lessons, monitoring understanding/learning, developing higher order thinking through questioning and collaboration, assessing achievement, establishing links to other curriculum, considering achievement for each child within the classroom, differentiating for a variety of learning profiles, etc.),
- consideration and implementation of the nature of science within a variety of instructional strategies for practices and techniques that allow all students to receive high-quality instruction that develops their science content understandings,
- subject matter knowledge by exposing students to a selection of science concepts commonly taught in the elementary classroom through the engagement with investigations designed to highlight specific instructional practices,
- opportunities to teach and observe science in action using the above knowledge bases, and
- reflective opportunities through practice.

Required Texts and/or Readings and Course Materials

Note: The texts are located online. All course readings will also be provided. Important: all posted reading assignments are required reading - you will be expected to bring to class your notes and insights, infusing them into the class discussion. If you prefer hard-copy versions of the books, you will need to purchase them.

1. Ansberry, K. R., & Morgan, E. R. (2010). Picture-perfect science lessons: Using children's books to guide inquiry. NSTA Press.

Available for free online with USF Libraries Online <https://lib.usf.edu/>
 Ansberry, K. R., & Morgan, E. R. (2007). More Picture-perfect Science Lessons: Using Children's Books to Guide Inquiry, K-4. NSTA press.
 Ansberry & Morgan, E. R. (2005). Picture-perfect science lessons: Using children's books to guide inquiry: grades 3-6. NSTAPress.

Cartier, J.L.; Smith, M.S.; Stein, M. K.; & Ross, D.K. (2013). 5 Practices for Orchestrating Productive Task-Based Discussions in Science. National Council of Teachers of Mathematics.

Florida Teacher Certification Examinations (FTCE) Website – Note: It is expected that students enrolled in the course will register and take the Science test by the end of the semester.

<https://www.fldoe.org/accountability/assessments/postsecondary-assessment/ftce/>

*Additional required readings are linked on the course Canvas site.

*Laptop computer – bring to each class with the exception of field experience

Supplementary (Optional) Texts and Materials

Note: all FTCE science practice quizzes are available to you in Canvas.

1. Wenham, M. & Ovens, P. (2010). Understanding Primary Science. (3rd ed). Chapman.
Required chapters will be provided in Canvas.

How to Succeed in this Course

How to Succeed in this Course

Plan to *read all assigned documents prior to each class meeting*. Classes will *meet in-person, on campus*. Come prepared to discuss the readings, apply the information from the readings, and collaborate with others in small group as well as whole class activities.

Note: The value of this course comes from the required in-person attendance. As such, the *attendance policy* is robust (see Attendance Policy below).

Announcements will be sent each week via Canvas. It is *critical to completely read* all announcements which are transmitted via Canvas.

Grading Scale

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Grading Scale (%)	
94-100	A
90 – 93	A-
87 – 89	B+
84 – 86	B
80 – 83	B-
77 – 79	C+
74 – 76	C
70 – 73	C-
67 – 69	D+
64 – 66	D
60 – 63	D-
0 – 59	F

Grade Categories and Weights

Your overall grade in the course will be based on a combination of your in-person attendance and assessments occurring throughout the semester. Many of these are long-term projects and are designed to allow you to complete them in phases to make them more manageable tasks. *Note, the assignments are designed to accompany and build from the class meetings, therefore **full attendance and participation** are critical to succeeding in the course.* Detailed assignment descriptions are provided along with some rubrics that outline the evaluation criteria.

Grade Categories and Weights

Assignments / Tasks	Course Grade Points
Discrepant Event and Presentation	15
Lesson Analysis and Modification	15
SSI Plan and Presentation	20
Inquiry Project	25
Lesson Plan (Critical Task)	85
Lesson Plan Presentation	5
FTCE Science Practice Quizzes (14)	14
Course Digital Portfolio	30

Class Participation: (Reading Responses, Contributions to Discussions, Attendance, and Professionalism)	100
TOTAL	309

Throughout the semester, you will take part in class activities and complete a variety of tasks, which may or may not be graded. Examples include probing data analysis, evaluating lessons, reflections, and sharing web resources. *These are considered part of the participation grade in the course and may be included as evidence in your course digital portfolio.*

Curriculum-Based Assessment Tasks (Informal)

The candidate completes additional curriculum-based informal assessment tasks for review, comment, and evaluation. The curriculum-based assessment tasks may include varied activities, projects, practices, or exercises. The curriculum-based assessment tasks may also be evaluated either quantitatively and/or qualitatively for course grading purposes. Performance on the curriculum-based assessment tasks will impact the grade in the course. The curriculum-based assessment tasks that are required in the course are described below.

Instructor Feedback Policy & Grade Dissemination

Students are responsible for meeting all assignment due dates.

Instructor feedback and grade dissemination will occur approximately within one week of assignment submission.

Course Schedule

Tentative Schedule

Week #	Date	Assignments / Due Dates
		Readings to be completed and associated reflections and work should be prepared <i>prior</i> to the next class meeting. Please be prepared to implement your reactions to the readings in class discussions – active and meaningful contributions will comprise a portion of the course grade

Week #	Date	Assignments / Due Dates
		Readings to be completed and associated reflections and work should be prepared <i>prior</i> to the next class meeting. Please be prepared to implement your reactions to the readings in class discussions – active and meaningful contributions will comprise a portion of the course grade
1	7/1/26	Read: 1) Ansberry and Morgan Chapters 1,3,4,5 (2 is optional but also good). These chapters are the first 5 chapters of all three of the Ansberry and Morgan books. 2) Bell <i>Teaching the Nature of Science – Three Critical Questions</i> 3) Course Syllabus in full Discrepant Event assignment (Sign up to present) Introduction to Inquiry Project
2	7/8/26	Read: 1) AAAS The Nature of Science Overview 2) Bybee <i>BSCS 5E Instructional Model</i> Discrepant Event mini-presentations today
3	7/15/26	READ: tba in Canvas
4	7/22/26	Read: tba in Canvas Lesson Analysis and Adaption (in-class assignment)
5	7/29/26	READ: tba in Canvas
6	8/5/26	Presentations: Final Critical Task Lesson Plans today DUE: Final Critical Task Full Lesson Plans due 8/10 DUE: FTCE practice tests must be completed by 8/15

USF Core Syllabus Policies

USF has a set of central policies related to student recording class sessions, academic integrity and grievances, student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, pregnancy and related conditions, and sexual harassment that **apply to all courses at USF**. Be sure to review these online:

<https://www.usf.edu/provost/faculty-success/resources-policies-forms/core-syllabus-policy-statements.aspx>

Student Recordings

Florida Statute 1004.097 Free Expression on Campus

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal, educational use (USF Policy 10-048). A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach enrolled students about a particular subject. Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member is prohibited. Recordings may not be used as a substitute for class participation and class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the USF Student Conduct Code.

Course Policies: Grades

Attendance Policy: Students are expected to attend all scheduled class sessions. However, due to circumstances beyond your control (ex: illness) you may be absent during the semester at some point. **Unexcused absences will result in a deduction of 20 points from the overall grade for each unexcused absence.** Excused absences will not result in a deduction of points with proper documentation provided within one week (7 days) of the missed class. Documentation must be dated *before or on* the date of missed class and signed. (i.e., doctor's notes dated the day after the missed class will not be accepted as documentation). In addition, *tardiness or early self-dismissals will be documented as absences*. Arriving late or leaving early *will be counted as an absence unless documentation is provided before or on the date*. As a courtesy to your instructor and your classmates, please let me know when you will be out of class so that accommodations in group structure, etc. can be made. Please do not schedule any appointments during class time, they will not be considered excused absences. If absent with an excused absence, it is your responsibility to ensure any assignments due are turned in, and to find out what tasks you need to complete. Please note that given the hands-on nature of our course, many in-class activities cannot be "made up."

To clarify, please do NOT schedule appointments of any kind during class time – they will not be considered excused absence. If absent, it is your responsibility to ensure any assignments due are turned in, and to find out what tasks you need to complete to make up for the missed time.

Late Work Policy: As this course is intended to support the continuous development of professional learning, timely submission of assignments is a requirement in order to demonstrate conceptual understanding and generation of teacher knowledge over time. As such, all late assignments may receive *up to 50%* of the graded assignment based on communication prior to due date. Otherwise, late assignments will not be graded.

Grades of "Incomplete"

An Incomplete grade ("I") is exceptional and granted at the instructor's discretion only when students are unable to complete course requirements due to illness or other circumstances beyond their control. The course instructor and student must complete and sign the "I" Grade Contract Form that describes the work to be completed, the date it is due, and the grade the student would earn factoring in a zero for all incomplete assignments. The due date can be negotiated and extended by student/instructor as long as it does not exceed two semesters for undergraduate courses and one semester for graduate courses from the original date grades were due for that course. An "I" grade not cleared within the two semesters for undergraduate courses and one semester for graduate courses (including summer semester) will revert to the grade noted on the contract.

Campus Free Expression

It is fundamental to the University of South Florida's mission to support an environment where divergent ideas, theories, and philosophies can be openly exchanged and critically evaluated. Consistent with these principles, this course may involve discussion of ideas that you find uncomfortable, disagreeable, or even offensive.

In the instructional setting, ideas are intended to be presented in an objective manner and not as an endorsement of what you should personally believe. "Objective" means that the idea(s) presented can be tested by critical peer review and rigorous debate, and that the idea(s) is supported by credible research.

In this course you may be asked to engage with complex ideas and to demonstrate an understanding of the ideas. Understanding and engaging with an idea does not require you to believe it or to agree with it.

Course Policies: Technology and Media

Canvas:

This course will be offered via USF's learning management system (LMS), Canvas. If you need help learning how to perform various tasks related to this course or other courses being offered in Canvas, please view the following videos or consult the Canvas help guides. You may also contact USF's IT department at (813) 974-1222 or help@usf.edu.

Laptop Usage:

Laptop and cell phone usage: Non course related laptop and cell phone use during class time is not permitted unless we are engaged in a project that requires the use of a laptop or cell phone.

Phone Usage:

Non course related cell phone use during class time is **not permitted** unless we are engaged in a project that requires the use of a cell phone.

Course Policies: Student Expectations

Health and Wellness

Your health is a priority at the University of South Florida. We encourage members of our community to look out for each other and to reach out for help if someone is in need. If you or someone you know is in distress, please make a referral at www.usf.edu/sos so that the Student Outreach & Support can contact and provide helpful resources to the student in distress. A 24-hour licensed mental healthcare professional, offered through the counseling center, is available by phone at 813-974-2831, option 3. Please remember that asking for help is a sign of strength. In case of emergency, please dial 9-1-1.

Title IX Policy

USF is committed to fostering a safe and respectful learning environment, free from sex discrimination and sexual harassment, in accordance with Title IX and USF Policy 0-004. If a student shares an experience of sexual harassment, sexual assault, stalking, or relationship violence with a USF employee (including faculty), that employee will notify the Title IX Office. This allows the Title IX Office to send the student an email with information about support resources and options—if it is safe to do so. Students are not required to respond to this email. The Title IX Office is a private resource. Information is shared only on a need-to-know basis to provide students with support measures. To speak to a confidential resource,

students may contact USF Center for Victim Advocacy at 813-974-5757. Confidential resources do not notify the Title IX Office unless the student requests it. For more information about Title IX, available resources, or to make a report, please visit www.usf.edu/title-ix.

Course Hero / Chegg Policy

The USF Policy on Academic Integrity specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. This does apply specifically to Chegg.com and CourseHero.com – almost any use of these websites (including uploading proprietary materials) constitutes a violation of the academic integrity policy.

Professionalism Policy

Per university policy and classroom etiquette; mobile phones, iPods, etc. must be silenced during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

Turnitin.com

In this course, turnitin.com may be utilized. Turnitin is an automated system which instructors may use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you will be expected to submit all assignments in both hard copy and electronic format. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>. Essays are due at turnitin.com the same day as in class.

Netiquette Guidelines

1. Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people's ideas and be constructive when explaining your views about points you may not agree with.
2. Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
3. Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
4. Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.

5. Be clear with your message. Avoid using humor or sarcasm. Since people can't see your expressions or hear your tone of voice, meaning can be misinterpreted.

Email and Discussion Board Guidelines

1. Use the subject line effectively by using a meaningful line of what your email or discussion is about.
2. Keep your emails and postings related to the course content. You should not post anything personal on a discussion board unless it is requested by the instructor.
3. Any personal, course or confidential issues should be directly communicated to the instructor via email. The discussion boards are public spaces; therefore, any issues should not be posted there.

End of Semester Student Evaluations

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

Food and Drink Policy (for in-campus sessions only).

Please adhere to the firm policy of no beverages (other than bottled/capped water), food, tobacco products, or like items in the classroom. Your understanding of the necessity for this policy and cooperation will be greatly appreciated. This policy will be strictly enforced.

Learning Support and Campus Offices

Academic Accommodations

Students with disabilities are responsible for registering with Student Accessibility Services (SAS) in order to receive academic accommodations. For additional information about academic accommodations and resources, you can visit the SAS website.

[SAS website for the Tampa and Sarasota-Manatee campuses.](#)

[SAS website for the St. Pete campus.](#)

Academic Support Services

The USF Office of Student Success coordinates and promotes university-wide efforts to enhance undergraduate and graduate student success. For a comprehensive list of academic support services available to all USF students, please visit the [Office of Student Success website.](#)

Canvas Technical Support

If you have technical difficulties in Canvas, you can find access to the Canvas guides and video resources in the “Canvas Help” page on the homepage of your Canvas course. You can also contact the help desk by calling 813-974-1222 in Tampa or emailing help@usf.edu.

[USF IT Service Support Tampa Campus](#)

[USF IT Support St. Pete Campus](#)

[USF IT Support Sarasota-Manatee Campus](#)

Center for Victim Advocacy

The [Center for Victim Advocacy](#) empowers survivors of crime, violence, or abuse by promoting the restoration of decision making, by advocating for their rights, and by offering support and resources. Contact information is available online.

Counseling Center

The Counseling Center promotes the wellbeing of the campus community by providing culturally sensitive counseling, consultation, prevention, and training that enhances student academic and personal success. Contact information is available online.

[Counseling Center website for the Tampa campus.](#)

[Counseling Center website for the St. Pete campus.](#)

[Counseling Center website for the Sarasota-Manatee campus.](#)

Tutoring

The Tutoring Hub offers free tutoring in several subjects to USF undergraduates. Appointments are recommended, but not required. For more information, email asctampa@usf.edu.

[Tutoring website for the Tampa campus.](#)

[Tutoring website for the St. Pete campus.](#)

[Tutoring website for the Sarasota-Manatee campus.](#)

Writing Studio

The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, email: writingstudio@usf.edu.

[Writing studio website for the Tampa campus.](#)

[Writing studio website for the St. Pete campus.](#)

[Writing studio website for the Sarasota-Manatee campus.](#)

Student Ombuds Office

Florida Statute 1006.51 and Florida Board of Governors Regulation 6.011 require that all public institutions provide ombuds services to students. The Student Ombuds Office at USF is a confidential, impartial, informal, and independent resource for students experiencing challenges related to the university. Ombuds can help students safely explore options, clarify processes, and consider next steps. [Learn more or make an appointment at usf.edu/student-ombuds.](https://usf.edu/student-ombuds)