



CHIPOLA COLLEGE

COURSE SYLLABUS

Chipola's website: www.chipola.edu

COURSE TITLE:

Teaching Science in Elementary School

COURSE NUMBER:

SCE 4310

COURSE DESCRIPTION (with prerequisites):

This course presents materials and methodology related to teaching the concepts and processes of science to elementary children. The pre-service teacher who completes this course will be prepared to teach the concepts and processes of science. This course requires a minimum grade of "C". Current background check (fingerprinting) acceptable to the District in which the field experience will take place is required for this course. A ten (10) hour practicum is required for course completion. 3 semester hours credit. [A]

NAME(S) OF INSTRUCTORS:

Amanda Clark

EFFECTIVE ACADEMIC YEAR:

2015-2016

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:**SUGGESTED:**

1. Florida Educator Competencies and Skills
<http://www.fldoe.org/asp/ftce/ftcecomp.asp#Fifteenth>
2. Florida Educator Accomplished Practices
3. A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas, 2012 ([free PDF](#) from National Academies Press and [hard copy](#) from NSTA Press)
4. *Common Core Standards Initiative* (<http://www.corestandards.org>)
5. *Science K-8 An Integrated Approach*, Edward Victor, Richard D. Kellough, Robert H. Tai1, 11th Edition, 2008, Pearson, ISBN-13: 978-0-13-199210.

GRADING POLICY:

The standing of a student in each course is expressed by one of the following letters and corresponding grading system:

A – 90 – 100

B – 80 – 89

C – 70 – 79

D – 60 – 69

F – 59 or less

The Chipola Catalog provides policies and procedures regarding the grading system. A student's Grade Point Average is derived from the grading system/quality point scale.

ATTENDANCE AND WITHDRAWAL POLICIES:

Chipola College expects regular attendance of all students. Students who are absent from classes for any reason other than official college activities must satisfy the instructor concerned that the absence was due to illness or other clearly unavoidable reasons. Otherwise, the student may suffer grade loss at the discretion of the instructor. Chipola policy allows each instructor to specify in the Instructor First Day Handout whether or not an absence is excusable and what affect the absence or tardy may have on the grade.

A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction (unless waived by Student Services), (2) cannot withdraw, and (3) must receive a grade.**

MAKE-UP POLICY:

Chipola allows each instructor to specify in the Instructor First Day Handout the makeup policy.

ACADEMIC HONOR CODE POLICY:

Students are expected to uphold the Academic Honor Code. Chipola College's Honor Code is based on the premise that each student has the responsibility to (1) uphold the highest standards of academic honesty in his/her own work; (2) refuse to tolerate academic dishonesty in the college community; and (3) foster a high sense of honor and social responsibility on the part of students. Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

STUDENTS WITH DISABILITIES POLICY:

Chipola College is committed to making all programs and facilities accessible to anyone with a disability. Chipola's goal is for students to obtain maximum benefit from their educational experience and to effectively transition into the college environment. Students with disabilities are requested to voluntarily contact the Office of Students with Disabilities to complete the intake process and determine their eligibility for reasonable accommodations.

LIBRARY AND ON-LINE REFERENCE MATERIALS:

The library is a comprehensive learning resource center providing information in print, electronic, and multimedia format to support the educational objectives of the College. On-line catalogs, e-books and electronic databases can be accessed by using the *LINCCWeb* icon on the Chipola Library website at www.chipola.edu/library. If you have questions about database usage consult the "How to Use the Chipola Databases" on the Library website or call the Library at 850/718-2274 during regular hours. Library hours are posted each semester at the building entrance and on the Library website. See your Instructor First Day Handout for individual instructor recommendations and resources.

TECHNOLOGY RESOURCES:

The college's learning management system is **Canvas**. Classes become available on Canvas on the first day of the semester. It is the student's responsibility to log onto the Canvas system the first day of class to establish the first day of attendance and to check announcements. All official class communication must be through Canvas. For further information, contact your instructor or the Director of eLearning. The Canvas support hotline is available online in live chat and on the phone, toll-free, at 855-308-2812 for any issues in accessing or utilizing Canvas. The **Information Technology Center**, located in the library, is equipped with computer workstations. Lab hours are posted each semester at the building entrance and on the Library website.

FREE TUTORING RESOURCES:

The Academic Center for Excellence (**ACE**) Lab, located in Building L, offers free tutoring from 8 a.m. to 5 p.m. and is equipped with computer workstations. ACE lab hours are posted each semester at the room entrance and on the website. Additionally, Chipola College has contracted **Smarthinking**, a Pearson Company, for online tutoring services, accessible especially from 5 p.m. to 8 a.m. and weekends. Smarthinking can be accessed through Canvas.

ELECTRONIC DEVICE USAGE STATEMENT:

Classrooms should be free of all unnecessary distractions from the task of learning. Therefore, as a general rule, students should silence and avoid use of all electronic devices (laptops, phones, tablets, etc.) not being used for coursework. Consult first-day handouts for any specific policies related to the use of electronic devices in the classroom, as they may vary depending upon the nature of the course or the guidelines of the instructor. Faculty reserve the right to regulate the use of electronic devices and their accessories in class.

DISCIPLINE SPECIFIC COMPETENCIES / LEARNING OUTCOMES:

- E – 1 Demonstrate understanding of instructional design and lesson planning by applying concepts from human development and learning theories.
- E – 2 Demonstrate ability to maintain a student-centered learning environment that is safe, organized, equitable, flexible, inclusive and collaborative.
- E – 3 Demonstrate effective instructional delivery and facilitation by utilizing deep and comprehensive knowledge.
- E – 4 Demonstrate understanding of assessment by analyzing and applying data from multiple assessments to diagnose learning needs and inform instruction.
- E – 5 Demonstrate continuous improvement by designing purposeful goals to strengthen instructional effectiveness and impact student learning.
- E – 6 Demonstrates professional responsibility and ethical conduct and fulfills expected obligations to students, the public, and the education profession.

LINKING COURSE-LEVEL STUDENT LEARNING OUTCOMES WITH DISCIPLINE-SPECIFIC COMPETENCIES, ASSESSMENT METHODS, AND ARTIFACTS

STUDENT LEARNING OUTCOMES FOR SCE 4310 The student will:	NSES/ State-Adopted Standards	FEAPs (Discipline Outcomes)	FL Competencies and Skills:		Assessment Activities
			Science K-6	Professional Ed.	
Explain NSES Science Teaching, Assessment, professional Development and Content Standards (emphasizing their unifying concepts, processes, inquiry and their overall purpose of science literacy); and state-adopted standards .	All			1.1, 1.4, 13.1, 13.2	Test
Develop a well thought out position on why science should be taught in the elementary school.	Selected NSES Standards		26.1		Assignment
Plan inquiry based science lessons (with collaboration) for students, which include objectives adapted to: national, and state goals; experiences, interests, questions and ideas of students.	NSES Teach Standards State-Adopted Standards	(E-1)1.1-3, 1.6, (E-2) 2.3-4, 2.8	25.1-5, 27.1-3	4.1, 4.2, 10.1-3	Task CC1ES -
Ascertain prior knowledge (naïve concepts) in science for given grade levels as well as culture and experiential background of students, and their effects on learning.	NSES Teach Standards	(E-1)1.2, (E-3) 3.3-5	27.3	5.1-2, 7.3	Test Task CC1ES
Build a repertoire of teaching strategies/skills (to be used in each part of the lesson plan) which promote NSES inquiry: laboratory/demonstrations (safety); questions/ discussion; technology; critical/creative thinking, problem solving.	All NSES Teaching Standards	(E-1) 1.1, 1.3, 1.6	27.1-3	4.1-2, 8.4, 13.2	Task CC1ES
Demonstrate knowledge of science concepts (and respective technologies, strategies, community resources) for Competencies and Skills; and state-adopted Core Ideas: physical sciences; life sciences; earth and space sciences; engineering, technology, and applications of science.	All NSES All State-Adopted Standards		All		Task CC8B
Demonstrate competencies in implementing inquiry, using	Selected benchmarks	(E-1)1.1-6; (E-2) 2.3-6, 2.8; (E-3)	25.1-2	2.2, 2.4, 4.1-2, 5.1-2; 10.1-	Task CC1ES

science process skills and critical thinking strategies in methods of teaching science content, and in defining and solving problems for diverse learners	depending on student lesson topics	3.1, 3.4-7, 3.9-10		3; 14.3	Test Teacher Observation Assignment
Use assessment techniques which are authentic and help students learn (through feedback) and the pre-professional to become a reflective practitioner	NSES Assessment Standards	(E-3) 3.3 (E-3); (E-4) 4.2-3	27.3	1.2. 1.3. 1.4	Task CC1ES Test Assignment
Participate in professional growth opportunities.	NSES Professional Development	(E-5) 5.4-5		3.1	Attendance at Campus Seminars/Workshops
**Assessment Codes					
T = Tests Pre/Post = Pre- and Post-Tests OT = Objective Tests UT = Unit Tests Q = Quizzes F = Final Examination CF = Cumulative Final EX = Departmental Exam SE = Nat'l or State Standardized Exam	RPT = Report/Presentation SP = Skills Performance SD = Skills Demonstration W = Writing Assignments E = Essays DE = Documented Essays RP = Research papers J = Jury R = Recital	Proj. = Projects Exp. = Experiments Cap. Proj. = Capstone Project Cap. Course = Capstone Course Prac. = Practicum Intern. = Internship H = Homework PS = Problem Solving DB = Discussion Board	BO = Behavioral Observation Clin. = Clinicals CS = Case Study CP = Case Plan Port. = Portfolio Obs. = Teacher Observation Sk. Check = Skills Check-off Curriculum Frameworks JP = Judged Performance/Exhibition		

MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:

1. Attend and participate in class regularly.
2. Read all assigned material before class.
3. Study in-class notes and on-line (Canvas) materials.
4. Complete assigned projects in a timely manner to enable reflections and revisions on the final product.
5. Seek opportunities to practice teaching skills through tutoring and substituting in **K – 12** schools.
6. Collaborate with peers and other professionals.

ASSIGNMENT AND/OR COURSE OUTLINE

Course Evaluation Criteria:

- Tasks (80%)
- Professionalism in Attendance and Participation (20%)

Your final grade will be based upon the college grading scale which is as follows. **State of Florida Requirement for Upper Division Credit: Minimum grade for course = C.**

**Tasks must meet the criteria for “demonstrated” as determined by the scoring rubric to earn credit for this course. Tasks are due at the beginning of class. Tasks are considered “LATE” after the moment the instructor takes them up. Any task received late will result in a grade of “0”. A task judged as “partially demonstrated” or “not demonstrated” may be resubmitted for the purpose of demonstrating the accomplished practice indicator.*

The original grade will be used when calculating the course average. Points will not be added

for resubmissions but will be deducted if not resubmitted within the timeframe set forth by the instructor.

To pass this class ALL tasks must be successfully demonstrated with “acceptable” formal reflections included.

Overview/Plan for the course:

I. General

- Keep a Portfolio organized by disciplines: Universe and Earth; Living Things; Matter Energy, and Technology.
- Add lessons as the course progresses, both yours and teacher’s.

II. Specific (for your assignments)

- Select Big Idea from Next Generation Sunshine State Standards and match to your discipline
- Read precisely what you will teach in the “SSS, Next Generation”
- Select strategies to be used in teaching Big Idea
- Design Lesson
- Plan Science Fair Project (option)

Specifically, students enrolled in SCE 4310 will complete the following:

A. 10-hours Observation/Participation

1. This course requires 10 hours of observation and participation in a local elementary school. You must **observe** in grades 3-5, and may not earn more than 2 hours in one day for this course. Be sure to sign in at the school EVERY time you go, even if the school says it is not required. The log must be turned in to the instructor by the designated date. Any falsification of signatures or other data on the log will result in an Honor Code Violation* to be placed in your permanent record, a letter-grade reduction of this course’s final grade*, and you will have to complete an additional 10 hours in a school and classroom designated by the instructor. Failure to complete the required hours or failing to turn in the form by the designated date will cause you to receive an Incomplete for this course until the hours are satisfactorily completed and the log submitted. **If this is your first Honor code violation; if you already have an Honor Code Violation on file, you could receive a failing grade for the course and/or face a committee hearing and expulsion from the Teacher Education Program.*

B. Tasks (80%)

1. Task CC1ES (FEAP 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.3, 2.5, 2.6, 2.8, 3.1, 3.3, 3.4, 3.5, 3.6, 3.7, 3.9, 3.10): The candidate selects a Big Idea from among the 17 NGSSS for concept development, inquiry, and science literacy. It includes approximately 6 formal lesson plans for practice at the college and implementation at the elementary school. They contain at least the following components (skills/strategies): concept map; observation; measurement; communication; classification (multistage); prediction; inference; researchable question; lab/nature/activity; two (theorists) – one in education and one in science (related to the methodology and topic chosen, respectively). Assessment instruments must be included with results; and reflections subsequent to teaching.
2. Task CC8B (FEAP 5.4): The candidate completes a series of performance tasks that require

specific content knowledge (**see competencies and NGSSS**) in the areas of: nature of matter; forces, motion, and energy; life science; nature of science; relationship of science and technology; instruction and assessment. *If the student has passed the subject area exam for his/her major, then this task has been completed.* For this exemption, a copy of a passing score must be recorded in the database by end of the first week of classes. **(Irrespective of the exemption, students will complete tests for a course grade)**

PERIODICALS

American Biology Teacher
ChemMatters
E: Environmental Magazine
Ecology
Environment
Green Teacher
Journal of College Science Teaching
Journals of Computers in Math and Science Teaching
Journal of Science Teacher Education
Science
Science and Children
Science News
Science Scope
Science Teacher
Science World
Scientific American
Super Science

DATABASES

Science

Applied Science and Technology
Biological & Agricultural Index Plus (Wilson)
General Science Full Text (Wilson)
GreenFile (EBSCO)
JSTOR
Science Complete (Wilson)
Science Resource Center (Gale)

Make sure you always click on a database that says "Full Search".

C. Attendance (10% of final grade)

The following scale will be used to calculate the attendance grade based on unexcused absences per 50-minute class period. The first 3 absences can be missed for any reason and no deduction will be made. After the third absence, only excused absences (*personal illness, child's illness, death in family, inclement weather, or other reason deemed excusable by the instructor*) will not incur a penalty.

0 to 3 absences.....100
4th absence.....90
5th absence.....70
6th absence.....60

Over 6 absences.....0

Being tardy will result in a 5-point deduction per tardy, beginning after the third tardy.

D. Participation (10% of final grade). Participating in class discussion and activities is an important component of the learning process. You are expected to participate in these discussions and activities and not be distracted by nonrelated things. That being said, having your laptops open during class, text messaging during class, working on assignments not related to this class, or in cases of being in the computer lab, being on websites not related to the course content (such as MySpace and Facebook, etc.) will result in point deductions for each offense. Your participation grade will be deducted each time you engage in non-class related activities, including all the aforementioned.

1st offense.....90

2nd offense.....70

3rd offense.....50

Over 3 offenses....0

Expectations

1. **Attendance is critical.** Part of being a professional teacher is being at school every day. The first three absences will not count against you, no matter the reason. However, after the 3rd absence, a penalty may be assigned. An excused absence will not count against you, if:
 - i. The instructor was contacted via phone call or email PRIOR to the absence. If for some reason I do not answer by phone (718 2397), you may leave a voicemail or message with the Department Assistant (Shawn Keihn, 718-2492).
 - ii. Documentation is provided upon your return to campus if requested by the instructor. Documentation will not be accepted after the first day you are back on campus.
 - iii. The instructor reserves the right to excuse or not excuse any absence, and each absence will be evaluated on a case-by-case basis.
 - iv. If an assignment is due that day, it must still be submitted.
2. **Tardy:** A 5 point deduction will be made against your attendance grade for any tardy or Early departure after the third one.
3. **Preparedness:** Students are expected to be prepared for class and to prepare required assignments in a timely manner.
4. **Ethics:** As members of the Chipola College Elementary Education academic community, you are a pre-service teacher. You are expected to commit yourself honestly. Honesty in academic work is vital and students should not knowingly act in ways which erode that integrity. Accordingly, actions or tolerance of cheating, plagiarism, bribery, conspiracy, misrepresentation, or other violations of the Chipola College Student Code of Conduct will result in disciplinary action **on the first incident.** Disciplinary action can include: degree program modification, grade reduction, suspension, or expulsion. Don't risk it!
5. **Written Work:** All written assignments will be judged on the accuracy of the content, comprehensiveness, typography and design, correct usage of grammar, correct capitalization, spelling, and punctuation; clarity of thought, and logical order and

sequence. Moreover, students are expected to adhere to specified formats; use various sentence patterns and structure; make use of transitional words and expressions, and maintain appropriate focus.

6. **Oral Presentation:** Any time a student speaks in front of the class, all presentations will be judged on correct punctuation and enunciation, projection, effective use of gestures, meaningful use of visuals, attention getting procedures, maintenance of audience interest, correct use of grammar and language, and degree of presenter enthusiasm and interest in the topic.

ATTENDANCE, PROCEDURES, AND WITHDRAWAL POLICIES:

1. **Attendance:** Students are expected to attend every class. Class will begin at the scheduled time. Students are expected to be prepared to begin work at this time. Students will be counted tardy if they arrived late or if they leave early.
2. **Procedures.**
 - A. Students are expected to complete reading assignments *prior* to each class so they can actively participate in class discussions and group activities.
 - B. Work is to be handed in at the beginning of class – on the assigned due dates. Late work will not be accepted.
 - C. Student conversations in class must be confined to specific course readings and relevant examples.
 - D. The class will follow the course syllabus as closely as possible. Changes may be made to allow for observations and other visits. Regular attendance in class will assure getting all pertinent information.
3. **Withdrawal Policies:** Students **will not** be administratively withdrawn from this course due to excessive absences. It is the student's responsibility to acquire the appropriate forms and to execute the appropriate college sanctioned procedures to officially withdraw from this course. A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction, (2) cannot withdraw, and (3) must receive a grade.**
4. **Cell phones:** Cell phones need to be turned to SILENT when you enter class; **VIBRATE IS NOT SILENT.**
5. Eating should be finished before coming to class. Please do not bring food into the classroom!

LATE WORK POLICY:

Students are responsible for all work missed during any absence (excused or unexcused). It is the student's responsibility to see the instructor during his/her office hours to get the handouts and other materials. Do not use class time to get these materials.

If you know you are going to be absent on a due date, it is your responsibility to get the assignment to the instructor BEFORE the beginning of the class period you will miss.

All tasks, major assignments, and any other assignments are due at the beginning of class unless otherwise specified by the instructor. Work not submitted at the time the instructor collects will be considered late and will receive a zero (0) for the grade. Late Tasks (not Major Assignments) may be submitted within 1 calendar week of the due date for Demonstration purposes only, but the zero (0) grade will remain.

A task judged as “partially demonstrated” or “not demonstrated” may be resubmitted for the purpose of demonstrating the accomplished practice indicator. Resubmissions must be received within 1 calendar week (unless otherwise specified) from the time the task is returned to you by your instructor. The original grade will be used when calculating the course average. Points will not be added for resubmission and will not be deducted if the resubmission is completed within the designated time allowed.

No grade will be given for the course until all tasks have been successfully demonstrated. No grade for the course will be given until acceptable reflections for all tasks are submitted.

This holds for students who are absent on the due date, whether the absence has been excused or not by the instructor.

EXTREME circumstances for submitting any work late will be evaluated by the instructor on a case-by-case basis but there is no guarantee any work will be accepted. All factors will be considered and the acceptance of the work will be solely at the discretion of the instructor.

ACADEMIC HONOR CODE POLICY:

Students are expected to uphold the Academic Honor Code. Chipola College’s Honor Code is based on the premise that each student has the responsibility to

- 1) uphold the highest standards of academic honesty in his/her own work;
- 2) refuse to tolerate academic dishonesty in the college community; and
- 3) foster a high sense of honor and social responsibility on the part of students.

Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

Course Outline:

Universe and Earth

- Universe (174-203)
- Earth (205-231)
- Water, Weather, and Climate (242-270)

Living Things

- Plants (290-314)
- Microbes (319-338)
- Animals (339-375)

Matter, Energy, and Technology

- Changes in Matter and Energy (418-431)
- Friction and Machines (438-440)
- Heat, Fire and Fuels (556-471)
- Sound (476-480)
- Light (486-494)

- Magnetism and Electricity (499-515)

Competencies:

Knowledge of the Nature of Matter
 Knowledge of forces, motion, and energy
 Knowledge of earth and space
 Knowledge of life science
 Knowledge of the nature of science
 Knowledge of the relationship of science and technology
 Knowledge of instruction and assessment

Tentative Activities:

National High Magnetic field Laboratory (Carlos Villa 850 644 7191)
Different Ways of Looking at the Same Thing (Richard Folsom)
 Project Learning Tree (Bill Kleinhans)
 Ground Water Outreach
 Plant Anatomy (Breivogel Yucca)
 Human Anatomy (Chicken Bones)
 Library Rock Collection
 Culturing from the Environment

Tentative Course Schedule

Topic	Assignment
Pre-Lab for Project Learning Tree	Pre-Test
Project Learning Tree at Caverns State Park	Workshop
Introduction to Syllabus, Tasks and Lab Tools	Post-Test Select Presentation Topics and Dates
Changes in Matter and Energy	418-437
Light	486-498
Heat, Fire, and Fuels	456-475
Sound	476-485
Earth	205-240
Friction and Machines	438-455
Microbes	319-338
Animals	339-383
Plants	290-318
Universe	174-204
Magnetism and Electricity	499-523
Water Weather and Climate	241-288
	Tasks Due Final Exam

See your Instructor First Day Handout for individual instructor assignment schedule.