CHIPOLA COLLEGE
COURSE SYLLABUS
Chipola's website: www.chipola.edu

COURSE TITLE: **COURSE NUMBER:**

Teaching Middle School Science   SCE 3320

COURSE DESCRIPTION (with prerequisites):

This course is designed for students who are majoring in science education and who will be obtaining teacher certification in grades 5-9 or 6-12. In this course students learn principles of effective curriculum design and assessment and apply these principles by designing and developing interactive science curriculum projects for middle school students. This course is offered concurrently with SCE 3940, a one credit hour practicum in which students present their projects in middle school classroom environments. This course addresses specific state-adopted standards, subject matter competencies and pedagogy pertinent to the discipline and required for certification. 10 hours of teaching are required. Corequisite: SCE 3940. 3 semester hours credit.

NAME(S) OF INSTRUCTORS:

Dr. Amanda Clark

EFFECTIVE ACADEMIC YEAR:

2015-2016

REQUIRED TEXTBOOKS AND INSTRUCTIONAL SUPPLIES:
SUGGESTED:
1. *Next Generation Science Standards* [Available] nextgenscience.org
2. Florida Educator Competencies and Skills
   http://www.fldoe.org/asp/ftce/ftcecomp.asp#Fifteenth
3. Florida Educator Accomplished Practices
4. 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)
5. *Common Core Standards Initiative* (http://www.corestandards.org)
6. *Science Instruction in the Middle and Secondary Schools*, Chiappetta, E.L., Koballa, T.R., Eighth Edition, 2015 Pearson, ISBN 13: 9780133783766
7. *National Science Education Standards*. National Research Council (1996). Washington, DC: National Academy Press. [Available] http://www.nap.edu/books/0309053269/html/R1.html [**Standards**]

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 3320 The student will:	NSES/ State-Adopted Standards	FEAPs (Discipline Outcomes)	FL Competencies and Skills:		Assessment Activities
			Science 5-9	Professional Ed.	
Examine the issues related to middle school education by comparing the organizational structures of middle schools, junior high schools and various middle school models		E-1		13.1-2	Test & Q
Study the intellectual, physical, socio-emotional, moral, and aesthetic development of pre- and early adolescents.		E-1		7.1	Test & Q
Describe cognitive, physical, socio-emotional, moral, aesthetic development of the pre- and early adolescent with respect to how diverse middle school students learn meaningfully (for example, concept mapping, integrated process skills)	All NSES Science Teaching and Content Standards	E-2, 2.4, 2.8		7.1-5; 14.2	Test, MA1-RPT
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 Standards	E-1, E-2, E-3, E-5, 1.1, 2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.10, 5.1		13.1, 13.2	4.4.1-RU 2.2.1-RU Test & Quiz
Plan for instruction at the middle school, relating the essential components of the lesson plan design (from introduction to review) to **NSES** and theory, historical perspectives, controversial issues and effective practice (5 E Model of Instruction)	All NSES Science Teaching Standards	E-1, E-2, E-3 1.1, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 3.8	All	10.2	4.4.1-RU 5.4.2-RU
Build a repertoire of teaching	All NSES	E-1, E-2, E-3,	8.1-4	4.1, 4.2, 7.2,	2.2.1-RU

strategies (to be used in each part of the lesson plan) which promote inquiry (and discovery based science experiences): laboratory/demonstrations (with safety precautions); questions and discussion; technology; and those that promote critical, creative thinking and problem solving.	Science Teaching Standards	E-5 1.1, 2.1-2.6, 2.8, 3.1-3.10, 5.1		7.3, 8.4	4.4.1- RU 5.4.2-RU Teaching Assignment
Review science content contained in the Florida Competencies and Skills and NGSS	All NSES Content Standards All State-Adopted Standard benchmarks		All		CC8B-RU
Plans for and implements the central strategy for teaching science which is "inquiry" into authentic questions generated from student experiences"	NSES Teaching standards; selected NSES/State-Adopted Standards	E-1,1.1-6 ,E-2, 2.1-8, E-3, 3.1, 3.3-7. 3.9-10	9.1-10	4.1,4.2,10.1-3	MA2-SD (presents a critical thinking learning strategy) MA4-SD Teaching Assignments
Plan, critique (with colleagues) teach appropriate (grade, diverse learners) science lessons in at least one of the **State-Adopted** content areas: physical science, life science or earth and space science (include standards of: inquiry; science and technology; science in personal and social perspectives; history and nature of science **in each**)	All NSES Content and Teaching standards Selected benchmarks dependent on student lesson topic	E-1,E-2, E-3, 1.1, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 3.8	All	10.2	4.4.1-RU 5.4.2-RU MA3-SD Lesson Plan Analysis
Teach five (5) to ten (10) lessons (5 hrs in HS; 1 hr. class; 3-4 hrs college science class) with the effective use of strategies for: inquiry (questioning); engagement of students; adaptation to student learning needs; technology; and for use in each lesson plan component (e.g., review)	NSES Content Standards, depending on topic Selected benchmarks dependent on student lesson topic	3.1, 3.3-7, 3.9-10 E-3	9.1-10	1.2, 1.3, 1.4, 12.1-4	MA4-SD, Teaching Assignments
Assess student progress in science by: constructing an appropriate test; analyzing student learning gains; reflecting to alter instruction	All NSES Assessment Standards	E-2, E-3, E-5, 2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.10, 5.1	8.5	1.2, 2.2	2.2.1-RU
Participate in professional growth opportunities.	NSES Standard for professional development	E-5,5.4, 5.5		3.1	CC3B-RU
**Assessment Codes					

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T = Tests	**RPT =** Report/Presentation	**Proj**. = Projects	**BO =** Behavioral Observation
Pre/Post = Pre- and Post-Tests	**SP** = Skills Performance	**Exp**. = Experiments	**Clin.** = Clinicals
OT = Objective Tests	**SD** = Skills Demonstration	**Cap. Proj.** = Capstone Project	**CS =** Case Study
UT = Unit Tests	**W** = Writing Assignments	**Cap. Course** = Capstone	**CP =** Case Plan
Q = Quizzes	**E** = Essays	Course	**Port.** = Portfolio
F = Final Examination	**DE** = Documented Essays	**Prac.** = Practicum	**Obs.** = Teacher Observation
CF = Cumulative Final	**RP** = Research papers	**Intern**. = Internship	**Sk. Check** = Skills Check-off
EX = Departmental Exam	**J** = Jury	**H** = Homework	Curriculum Frameworks
SE = Nat'l or State Standardized	**R** = Recital	**PS** = Problem Solving	**JP** = Judged
Exam		**DB** = Discussion Board	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 online (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:

- Test(s) (10%)
- Major Assignments (20 %)
- Tasks (60%)*
- Professionalism in Attendance and Participation (10%)

Your final grade will be based upon the college grading scale.

Tasks must meet the criteria for "demonstrated" as determined by the scoring rubric to earn credit for this course.

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 deducted or added for resubmission.

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

The Chipola Catalog provides specific information regarding other outcomes from the grading system. A student's Grade Point Average is derived from the grading system/quality point scale.

Students enrolled in SCE 3320 will be required to complete following:

A. Teaching (10 hours: 5 middle school; 1 methods class; 3-4 college biology class)
(25 Observation Hours)

B. Exam(s)
   1. Middle school concept, learning strategies, Standards, and Objectives

C. Tasks
   1. **Task 4.4.1 (FEAP 1.1, 1.3, 1.6):** This is a semester-long project in which the pre-service teacher collects strategies and materials to promote critical/creative thinking and problem solving and annotates each strategy regarding how it will be used in teaching. The product is the file of annotated strategies and materials.

   2. **Task 5.4.2 (FEAP 2.3, 2.4, 2.6, 2.7, 2.8, 2.9, 3.8):** The candidate plans a lesson and is observed regarding demonstrated effectiveness of instruction with regard to diversity. This observation targets sensitivity, equitable treatment, and planning for students from different backgrounds, cultures, and skill levels. The product is the rationale for class selecting the lessons, the lesson plans, and the completed observation instruments

   4. **Task CC3B (FEAP 5.4, 5.5):** Each student must show evidence of professional growth during this course. This evidence may be acquired by (1) attending a science seminar, like FAST Conference in Orlando Florida, or (2) reading articles from a professional journal in science education. Each student will submit a minimum of six presentation or article summaries, handouts or worksheets included, and a reflection. The reflection should include your opinion regarding (1) the feasibility of implementation (if appropriate), (2) its effectiveness, (3) whether you plan to use it in the future, and (4) any modifications you might want to make.

   5. **Task CC8B MS (FEAP 5.4):** The candidate completes a series of tests that require specific content knowledge as articulated in the *Florida Science Content Standards and the Competencies and Skills for Middle School General Science 5-9. 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.*

   6. **Task 2.2.1 (2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.10, 5.1, 6.1)** **-** The teacher candidate has three 15-30-minute lessons videotaped or observed by an instructor, evaluates his/her performance, and obtains an external evaluation from a peer or the mentor on each lesson. The product is the set of three self-assessments (one of which must be typed), three peer/mentor assessments and the teacher candidate's summary of what he/she has learned.

D. Major Assignments (May be modified to meet needs of class)
   1. Each student will be required to submit an article review on an individually assigned topic related to the middle school history, concept, and the theories supporting it.
   2. Each student will present on an assigned effective learning strategy used to enhance critical thinking. The strategy must be linked to educational psychology. The student will be required to submit an outline of his or her presentation to the instructor and to provide handouts for class participants. An example of this strategy in the area of science and mathematics should be included. Technology must be used in the presentation, i.e.

laboratory instrumentation, power point, internet, etc. The due date for this assignment will vary, depending on when the topic of the report is discussed.
3. Each student will analyze a lesson plan. In the analysis he or she will determine if (1) the content corresponds to the State-Adopted Standards, (2) it contains effective teaching strategies, (3) it includes critical thinking or problem solving, (4) the beginning focuses the pupils' attention on the subsequent lesson, (5) the content is presented in manageable chunks, (6) its provide time for practice, and (7) it focuses attention again in closing.
4. Each student will develop lesson plans to teach

ATTENDANCE, PROCEDURES, AND WITHDRAWAL POLICIES:

1. <u>Attendance</u>: Students are expected to attend every class. Class will begin at the scheduled time, initially and after break. Students are expected to be prepared to begin work at this time. Students will be counted tardy if they are late at the beginning of class or if they leave early. Professionalism in attendance and participation will be as follows:
   A. Tardy – minus 3 points each time
   B. Cell phone or improper computer use – minus 10 points each occurrence.
   C. Absent – minus 10 points each; more than four absences will receive a zero for participation.

2. <u>Procedures</u>.
   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 assignments receive a score of zero.
   C. Student conversations in class must be confined to specific course readings and relevant examples.
   D. Please finish meals before coming to class. Beverages must be in a leak proof container and food should be limited to snack items.

MAKE-UP POLICY:

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

<u>Major Assignments</u> not turned in on or before the due date will **NOT** be accepted. A **grade of zero** will be assigned to <u>tasks</u> not turned in on or before the due date. This holds for students who are absent on the due date. Exams cannot be made up unless some arrangements have been made **prior** to the scheduled administration.

Teaching days are not scheduled. These will be added when scheduled with local public schools and topics will be adjusted accordingly.
See your Instructor First Day Handout for individual instructor assignment schedule.