CHIPOLA COLLEGE

COURSE SYLLABUS

Chipola's website: www.chipola.edu

COURSE TITLE: Teaching Methods in Secondary School Science

COURSE NUMBER: SCE 4330

COURSE DESCRIPTION (with prerequisites):

This course is designed for students who are majoring in science education and is offered concurrently with the practicum in teaching secondary science. It addresses the required instructional methods, techniques, strategies, resources, and assessment considerations for effective teaching of secondary science including the pedagogy of biology, genetics, ecology, botany, anatomy and physiology; using problem solving, cooperative learning and appropriate technology. 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 4941 or Consent of Education Department. 3 semester hours credit.

NAME(S) OF INSTRUCTORS:

Dr. 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: 978-0-13-199210.
6. *Science Instruction in the Middle and Secondary Schools*, Chiappetta, E.L., Koballa, T.R., Seventh Edition, 2010 Pearson, ISBN: 9780137153046
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 the 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 4330 The student will:	**State-Adopted Standards/ NSES Standards**	**FEAPs (Discipline Outcomes)**	**FL Competencies and Skills:**		**Assessment Activities**
			Science 6-12	**Professional Ed.**	
Understand and explain the history and use of **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		11, 12, 13	13.1, 13.2	Test
Create long range and short range plans for instruction at a high	All NSES Science Teaching Standards	E-1		9.1, 9.2, 9.3, 9.4	Test
Include accommodations in lesson plans and during teaching that meet the needs of ESOL students and/or students with varying learning styles		(E – 2, 3, 6) 2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 3.8		7.1-5; 14.2	Task 5.4.2
Build a repertoire of effective teaching strategies (to be used in each part of the lesson plan) which promote **NSES** inquiry and discovery based science experiences: laboratory/demonstrations (with safety precautions); questions and discussion; technology; cooperative learning; and those that promote critical, creative thinking and problem solving.		E-1, E-2, E-3, E-6, 2.1, 2.2, 2.3, 2.5, 3.1, 3.3, 3.4, 3.6, 3.7, 3.9, 3.10. 6	14.2	2.4, 4.1, 4.2, 7.1, 7.2, 7.3, 7.4, 7.5, 14.2	Task 10A-RU
Review science content contained in the Florida **Competencies and Skills** and	All NSES All state-adopted		All		CC8B - RU

state-adopted standards	standards				
Plan, critique appropriate science lessons in one of the **state-adopted standard** content areas: physical sciences; life sciences; earth and space sciences; and engineering, technology, and applications of science	Selected Student Performance Expectations dependent on lesson topic All NSES	E-1	Selected competencies 1-10, based upon lesson topic selected	5.1, 5.2, 10.1, 10.2, 10.3, 14.3	Teaching assignments and accompanying lesson plans-SD
Teach with the effective use of strategies for: inquiry (questioning); engagement of students; adaptation to student learning needs	Selected benchmarks dependent on student lesson topic NSES depending on topic	E-2, E-3 2.3,2.4,.25,2.6, 2.8,2.9,3.1, 3.3, 3.4, 3.5, 3.6, 3.7,3.8, 3.9, 3.10	Selected and 1.6-15	1.2, 1.3, 1.4, 12.1-4	Task 2.2.1
Participate in professional growth opportunities.	NSES Standard for Professional Development	E-5		3.1	CC3B-RU

****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 online 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 Requirements:
Students will be required to complete the following:

1. **A minimum of five hours teaching in classrooms assigned by your instructor:**
   This course and the accompanying practicum require a total 10 hours of teaching. Five of these hours will be in on campus classes with topics in Nature of Science; Earth and Space; Physical Science; Life Science. These teaching assignments will be observed and evaluated by instructors in the teacher education and/or science department as well

as your peers in the science education department. The observation evaluations can be used to meet some of the requirements of Task 2.2.1 and Task 5.4.2.

2. Tasks

1. **Task CC3S (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 conference, like FAST Conference 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.

2. **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**) **-** 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.
3. **Task 5.4.2 (2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 3.8) -** The teacher plans a lesson for a class containing diverse students. The teacher is observed to determine effectiveness of instruction with a diverse student population. This observation targets sensitivity, equitable treatment, and planning for students from different backgrounds, cultures, and skill levels.
4. **Task CC8B (FEAP 5.4):** The candidate completes a series of written tests that require specific content knowledge as articulated in the *Florida Science Content Standards and the Competencies and Skills for Biology*. *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.*

The average of these tasks will account for 60% of the final grade*

**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 10 point deduction PER DAY. THIS WILL ONLY BE VALID FOR A 48 HOUR PERIOD. AFTER THOSE 48 HOURS THE GRADE WILL GO TO A ZERO. A task judged as "partially demonstrated" or "not demonstrated" must be resubmitted for the purpose of demonstrating the accomplished practice indicators (YOUR GRADE WILL NOT CHANGE).*

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.***

Tests (20% of final grade)
Participation and attendance – 20%

Participation grade is earned by achieving a satisfactory participation grade on in-class assignments. Consider that you are not able to participate if you are not in class. You can see later in the syllabus that being on your cell phone is also included in participation and how points will be deducted.

You will receive two grades in this category: one for attendance, the other for participation.

GRADE ONE: ATTENDANCE - 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, the following will take effect:

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.

GRADE TWO: PARTICIPATION – 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

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