I. Course Description:

Teaching Science in EC-6
Examination of the science curriculum for grades EC-6 with emphasis on current practices, trends and research on effective practices for teaching science. Includes investigation of activities and materials appropriate for achieving science objectives.

Prerequisites: Admission to Educator Preparation; enrolled in ELE 450 (Field Experience II)

Course Rationale: Through the past decade, elementary science education has taken on a "new" direction. Two factors that have given direction to the new elementary education curriculum are: (1) studies of the intellectual development of the young child, and (2) a shift from the lecture-demonstration teaching method to a discovery inquiry learning method. Science is a methodology (process) as well as a body of knowledge (content). Process and content are closely interrelated and both are essential in the science curriculum. It also encompasses a set of personal characteristics (attitudes), which reflects certain behavioral traits of a scientist/problem solver. Coverage of a fixed body of information is not to be regarded as an end in itself, but rather we should focus upon helping children develop an understanding of significant conceptual relationships. Students of science must develop proficiency in collecting, analyzing, synthesizing, and evaluating data, and in making application of this data to new problems. They must also be able to use basic scientific terminology and express simple basic number relationships in mathematical terms. Special consideration should be given to the ways in which scientific theories and laws are discovered, refined and tested. An understanding that theories and laws are regarded as tentative and open to revision should be developed. These ideas furnish this course with its objectives.

Mission: Through active participation in classroom projects/activities and outside field investigations the mission of this class, and the College Of Education, is to prepare competent, successful, caring and enthusiastic professionals dedicated to responsible service, leadership and continued professional and intellectual development.

II. Intended Learning Outcomes /Goals/Objectives:

Teaching Elementary is a hands-on /minds-on learning opportunity for teacher candidates at SFASU. It is our intent in the College of Education to prepare professional educators who positively impact learning for all students and graduate productive citizens and successful leaders. This science methods course supports the Mission of the College of Education by providing teacher candidates an opportunity to work with EC-6 public school students as we prepare them to become competent, successful, caring and enthusiastic professionals. One of the goals of the College of Education is to provide a variety of teaching venues incorporating the latest technologies to a range of diverse student interests, backgrounds, and aspirations. Another goal is to collaborate with external partners to enhance student's
knowledge, skills, and dispositions, and to influence the ongoing exchange of ideas for mutual benefit. This is accomplished in their field investigations at the SFA Arboretum and the Texas Freshwater Fisheries Center. The ACEI standards require that teacher candidates have opportunities to work with student and parents, and this also takes place in their field investigations. Public and private school students and their parents participate in these field investigations led by our teacher candidates. Teacher candidates learn to assess, plan, and implement instruction at appropriate levels. They also learn to use on-going assessment to reflect on student learning and teaching strategies to plan for future instruction. The teacher candidates at SFASU become reflective professionals who have experience planning appropriate instruction for diverse student learners. Teacher candidates participate in action research in this course to advance knowledge and to confirm best practices in elementary science teaching. Teacher candidates receive professional development credit and certification from national education organizations as a part of this course. They engage in outreach services, enhance student learning, and promote the reputation of the university through their field experiences.

Please follow this link to visit the SFASU College of Education Conceptual Framework: [http://www.sfasu.edu/education/about/accreditations/ncate/conceptual/](http://www.sfasu.edu/education/about/accreditations/ncate/conceptual/)

**EC6 Undergraduate Program Learning Outcomes and Student Learning Outcomes:**

**PLO 1** Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students’ development, acquisition of knowledge, and motivation (ACEI 1).

- **SLO 1.1** Candidates will know and understand the history and nature of science (EC6 Texas Science ST VI).
  - SLO 1.1.1 Assessment – Position Statements (NSTA); Science Resource Packet. Nature of Science – (6.2k, 6.3k, 6.10k, 6.3s).
- **SLO 1.2** – Candidates will understand how students learn in science and how science interacts with and influences personal and societal decisions (EC6 Texas Science ST IV, VII).
  - SLO 1.2.1 Assessment – **BBBB/Wetland Adventure** Teaching Stations; Raising and researching Butterflies. Personal and societal decisions – (7.1k, 7.3k, 7.4k, 7.7k, 7.1s, 7.4s, 7.6s). PPR – 4.15s Technology 1.3s, 3.6s, 7.11s; ISTE 1a, 3d).

**PLO 2** Candidates know, understand, and demonstrate a high level of competence in their content in the areas of English language arts, mathematics, science, and social studies (ACEI 2). SLO 2.4.1 Assessment – Student Impact using technology and Self-Reflection of BBBB/Wetland Adventure Paper.

- **SLO 2.2.2** Assessment – Lesson Sample/Lesson Plan Rubric Assignment (implementing unpacking TEKS, lesson and language objective taught in ECH 331 and RDG 320). PPR – (1.21k).
- **SLO 2.2.3** Assessment – Raising Butterflies Journaling & Research Assignment.
- **SLO 2.2.4** Assessment – Learning Tree Certification

- **SLO 2.1** – Candidates will understand use of tools, materials, equipment, and technologies and manage classroom, field, and laboratory activities to ensure the
safety of all students and ethical care and treatment of organisms and specimens (EC6 Texas Science ST I, II).

- SLO 2.1.1 Assessment – Guidelines for Classroom Safety and Science Safety Standards (NSTA); Safety and School Science Instruction, Responsible Use of Animals (Position Statements, NSTA); Texas Science Safety Standards K-12 (Dana Center/TEA; Live Plants and Animals in the room; Science Resource Packet; BBBB/Wetland Adventure Field Investigation Teaching Situations (same as SLO 1.2.1). Safety - (1.2k, 1.4k, 1.7k, 1.8k, 1.1s, 1.3s). Tools, materials, equipment & technology – (2.5k, 2.6k, 2.2s, 2.3s, 2.9s), PPR – (1.28k, 1.18s) (2.10k, 2.17k).

Technology 4.11s; ISTE 2d, 3d, 5d

- SLO 2.2 – Candidates will know and understand theoretical and practical knowledge of science teaching including the process of scientific inquiry and its role in instruction (EC6 Texas Science ST IV, III)
  - SLO 2.2.1 Assessment – Modified Science Process Skills Assignment; Science Resource Packet; Position Statements (NSTA); TEKS defined; Wetland Adventure/BBBB Field Investigations. Theoretical and Practical knowledge – (4.3k, 4.4k, 4.5k, 4.7k, 4.8k, 4.9k, 4.10k, 4.12k, 4.14k, 4.1s, 4.4s, 4.5s, 4.6s, 4.8s, 4.10s, 4.12s, 4.13s, 4.14s, 4.15s, 4.16s). Process of Science Inquiry – (3.4k, 3.5k, 3.4s, 3.6s, 3.7s, 3.8s).
  - SLO 2.2.2 Assessment – Raising Butterfly Activity (SCIENCE 1.5k, 9.1k, 9.2k, 9.3k, 9.4k, 9.5k, 9.6k, 9.7k, 9.10k, 9.11k, 9.1s, 9.2s, 9.3s, 9.4s, 9.5s, 9.7s, 9.8s, 9.9s, 9.10s, 9.16s, 9.17s, 9.18s, 9.19s, 9.21s; Technology 1.3s, 3.6s, 4.11s, 7.11s; ISTE 1a, 2d, 3d, 5d)

- SLO 2.3 – Candidates will know and understand the TEKS in physical science, life science, earth, and space science and will use unifying concepts and processes that are common the science content appropriate (EC6 Texas Science ST VIII, IX, X, XI). Life Science – (9.1k, 9.2k, 9.4k, 9.5k, 9.6k, 9.7k, 9.11k, 9.1s, 9.2s, 9.3s, 9.7s, 9.8s, 9.9s, 9.16s, 9.17s, 9.21s)
  - Assessment 2.3.1 – Science Diagnostic Assessment Quiz
  - SLO 2.4 – Candidates will know and use varied and appropriate assessment practices (formative/summative) to monitor science learning (EC6 Texas Science ST V). Science Resource Packet (Process Skills); Wetland Adventure/BBBB Field Investigations. Appropriate assessment – (5.1k, 5.3k, 5.4k, 5.5k, 5.7k, 5.8k, 5.10k, 5.11k, 5.1s, 5.2s, 5.3s, 5.5s, 5.8s).
  - SLO 2.5 - Candidates will demonstrate the ability to use appropriate technology for EC6 science instruction. (Science ST II)
  - SLO 2.5.2 Assessment – The Role of E-Learning in Science Education Discussion Board (SCIENCE 2.6k; PPR 1.28, 2.10k, Technology 4.1s; ISTE 1b, 5c, 5d)

B. Required Text and Materials:
1. Resource Packet with Articles/ Activities. This will be available online.
2. K-6 Science TEKS
3. BBBB T-Shirt
III. Course Assignments, Activities, Instructional Strategies

1. Develop a science portfolio composed of: science resource packet, class notes, and handouts.
2. Science lesson plan for activity taught in the science lab and classroom (using standard lesson cycle format) either 5 E or Direct Instruction, with objectives correlated to grade level Texas Essential Knowledge and Skills (TEKS).
   a) Science Lesson/Reflection taught at Bugs, Bees, Butterflies and Blossoms
   b) Science Self-Assessment
3. Five Quizzes
4. Summary/Reflection from Science and Children (NSTA Publication)
5. Butterfly Journal
6. Construction of Butterfly Habitat.
8. Bugs, Bees, Butterflies and Blossoms Special Event
9. Attendance and Attitude
10. Course Evaluation
11. Science Diagnostic assessment
12. Mid-Term Exam
13. Final Exam

Attendance Policy:
More than two unexcused absences in class will result in lowering of students grade by one letter. Additional absences will result in further reduction of grade or failure in that class. The student will be responsible for all work missed during absences. Any excused Absence must have written doctors signature for day missed

IV. Evaluation and Assessments

<table>
<thead>
<tr>
<th>Evaluation Area</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Term Exam</td>
<td>100</td>
</tr>
<tr>
<td>Five Quizzes</td>
<td>50</td>
</tr>
<tr>
<td>Science Diagnostic Assessment</td>
<td>40</td>
</tr>
<tr>
<td>Butterfly Journal</td>
<td>50</td>
</tr>
<tr>
<td>Butterfly Habitat</td>
<td>25</td>
</tr>
<tr>
<td>Technology assignment</td>
<td>10</td>
</tr>
<tr>
<td>Bugs, Bees, Butterflies and Blossom Special Event</td>
<td>100</td>
</tr>
<tr>
<td>Science and Children Summary/Reflection with reference documented</td>
<td>15</td>
</tr>
<tr>
<td>Attendance, Attitude and Class Participation</td>
<td>5</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
</tr>
<tr>
<td>End of semester course evaluation</td>
<td>5</td>
</tr>
</tbody>
</table>

A = 450-500
B = 400-449
C = 350-399
F = Below 350
ELE 301 CALENDAR
ASSIGNMENT DUE DATES
Spring 2018

Week of

<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-22-18</td>
<td>Science Self-Assessment/Bio-Sketch</td>
</tr>
<tr>
<td>01-22-18</td>
<td>Science Diagnostic Assessment</td>
</tr>
<tr>
<td>02-05-18</td>
<td>Pick up Painted Lady larvae</td>
</tr>
<tr>
<td>02-19-18</td>
<td>Technology Assignment</td>
</tr>
<tr>
<td>02-26-18</td>
<td>Butterfly Habitat due</td>
</tr>
<tr>
<td>03-19-18</td>
<td>Butterfly Journal due</td>
</tr>
<tr>
<td>04-09-18</td>
<td>Science &amp; Children Assignment due</td>
</tr>
<tr>
<td>04-16-18</td>
<td>BBBB lesson plan due/materials</td>
</tr>
<tr>
<td>04-24/27-18</td>
<td>BBBB Special Event</td>
</tr>
<tr>
<td>04-30-18</td>
<td>BBBB Event Reflection due</td>
</tr>
<tr>
<td>04-30-18</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

HABITAT CONSTRUCTION
(25 points)

1. VISIBILITY 5
2. ACCESSIBILITY 5
3. DURABILITY 5
4. CREATIVITY 5
5. SAFETY 5

JOURNAL REQUIREMENT
(50 points)
BUTTERFLY JOURNAL:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily entries (detailed observation)</td>
<td>10</td>
</tr>
<tr>
<td>Photos, drawings or both of each stage</td>
<td>10</td>
</tr>
<tr>
<td>Creative and neatness in presentation</td>
<td>10</td>
</tr>
<tr>
<td>Graphic organizer</td>
<td>10</td>
</tr>
<tr>
<td>Additional resources ie. Periodicals/internet sites &amp; info etc. (at least 3) to be place after last journal entree</td>
<td>10</td>
</tr>
</tbody>
</table>
V. Tentative Course Calendar:

Tentative Schedule
ELE 301  Spring 2018

Week Of:

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-15-18</td>
<td>Course Overview; Tentative Schedule and due Dates; Student Bio-Sketch; Science Self-Assessment;</td>
</tr>
<tr>
<td></td>
<td>Science Safety; PLT Textbook; Science Resource Packet; BBBS T-Shirt size.</td>
</tr>
<tr>
<td>01-22-18</td>
<td>Diagnostic Science Assessment; Skeptical Inquirer activities.</td>
</tr>
<tr>
<td>01-29-18</td>
<td>Rope Challenge activity; Why Teach Science? What Is Science? 12 Commandments for Teaching Science;</td>
</tr>
<tr>
<td></td>
<td>“Study says science should be kid’s stuff”; Air Pressure activities</td>
</tr>
<tr>
<td>02-05-18</td>
<td>Science Process Skill activities on Observation/Inference</td>
</tr>
<tr>
<td>02-12-18</td>
<td>Science Process Skill activities on Communication/Classification</td>
</tr>
<tr>
<td>02-19-18</td>
<td>Science Process Skill activities on Prediction; Assign BBBS lesson plan activity and partner</td>
</tr>
<tr>
<td>02-26-18</td>
<td>Mid-Term Exam</td>
</tr>
<tr>
<td>03-05-18</td>
<td>PLT Training Introduction and activities</td>
</tr>
<tr>
<td>03-12-18-18</td>
<td>SPRING BREAK</td>
</tr>
<tr>
<td>03-19-18</td>
<td>PLT Training/Activities</td>
</tr>
<tr>
<td>03-26-18</td>
<td>BBBS Activity</td>
</tr>
<tr>
<td>03-29-30-18</td>
<td>Easter Holiday</td>
</tr>
<tr>
<td>04-02-18</td>
<td>BBBS Activity</td>
</tr>
<tr>
<td>04-09-18</td>
<td>BBBS Activity; Work on assigned BBBS Lesson Materials with partner</td>
</tr>
<tr>
<td>04-16-18</td>
<td>BBBS Dry Run</td>
</tr>
<tr>
<td>04-24-27-18</td>
<td>BBBS Special Event at the SFA MAST Arboretum</td>
</tr>
<tr>
<td>04-30-18</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

VI. Readings:

Science and Children (NSTA Publication); and Science Resource Packet.

FEM Statement:

In this course, you must purchase and activate the LiveText add-on, Field Experience Module (FEM), PRIOR to your first day of field experience/clinical teaching. Failure to purchase and activate the account and/or submit the required assignment(s) within the FEM system may result in course failure. FEM must be purchased from www.livetext.com for a fee of $18.00 for a multiple year subscription.
LiveText Statement:

This course uses the LiveText data management system to collect critical assessments for students who are Perkins College of Education majors (undergraduate, graduate, and doctoral) or majors in other colleges seeking educator certification through the Perkins College of Education. Students who do not have an existing LiveText account will receive an access code via the SFA email system within the first week of class. You will be required to register your LiveText account, and you will be notified how to do this via email. If you forward your SFA e-mail to another account and do not receive an e-mail concerning LiveText registration, please be sure to check your junk mail folder and your spam filter for these e-mails.

If you have questions about obtaining or registering your LiveText account, call ext. 1267 or e-mail SFALiveText@sfasu.edu. Once LiveText is activated, if you have technical questions, call ext. 7050 or e-mail livetext@sfasu.edu. Failure to activate the account and/or submit the required assignment(s) within the LiveText system may result in course failure.

VII. Course Evaluations:

Near the conclusion of each semester, students in the College of Education electronically evaluate courses taken within the PCOE. Evaluation data is used for a variety of important purposes including: 1. Course and program improvement, planning, and accreditation; 2. Instruction evaluation purposes; and 3. Making decisions on faculty tenure, promotion, pay, and retention. As you evaluate this course, please be thoughtful, thorough, and accurate in completing the evaluation. Please know that the COE faculty is committed to excellence in teaching and continued improvement. Therefore, your response is critical!

In the Perkins College of Education, the course evaluation process has been simplified and is completed electronically through MySFA. Although the instructor will be able to view the names of students who complete the survey, all ratings and comments are confidential and anonymous, and will not be available to the instructor until after final grades are posted.

VIII. Student Ethics and Other Policy Information:

Class Attendance and Excused Absence: Policy 6.7

Regular, punctual attendance, documented participation, and, if indicated in the syllabus, submission of completed assignments is expected at all classes, laboratories, and other activities for which the student is registered. Based on university policy, failure of students to adhere to these requirements shall influence the course grade, financial assistance, and/or enrollment status. The instructor shall maintain an accurate record of each student’s attendance and participation as well as note this information in required reports and in determining final grades. Students may be excused from attendance for reasons such as health, family emergencies, or student participation in approved university-sponsored events. However, students are responsible for notifying their instructors in advance, when possible, for excusable absences. Whether absences are excused or unexcused, a student is still responsible for all course content and assignments. Students with accepted excuses may be permitted to make up work for up to three weeks of absences during a semester or one week of a summer term, depending on the nature of the missed work. Make-up work must be completed as soon as possible after returning from an absence.
Academic Accommodation for Students with Disabilities: Policy 6.1 and 6.6

To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 936-468-3004 as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilitieservices/.

Student Academic Dishonesty: Policy 4.1

Abiding by university policy on academic integrity is a responsibility of all university faculty and students. Faculty members must promote the components of academic integrity in their instruction, and course syllabi are required to provide information about penalties for cheating and plagiarism, as well as the appeal process.

Definition of Academic Dishonesty
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment; and/or;
- helping or attempting to help another in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source; and/or,
- incorporating the words or ideas of an author into one’s paper or presentation without giving the author credit.

Penalties for Academic Dishonesty
Penalties may include, but are not limited to, reprimand, no credit for the assignment or exam, re-submission of the work, make-up exam, failure of the course, or expulsion from the university.

Student Appeals
A student who wishes to appeal decisions related to academic dishonesty should follow procedures outlined in Academic Appeals by Students (6.3).

Withheld Grades: Policy 5.5

At the discretion of the instructor of record and with the approval of the academic unit head, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F, except as allowed through policy [i.e., Active Military Service (6.14)]. If students register for the
same course in future semesters, the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average.

Student Code of Conduct: Policy 10.4

Classroom behavior should not interfere with the instructor's ability to conduct the class or the ability of other students to learn from the instructional program. Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This policy applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the iCare: Early Alert Program at SFA. Information regarding the iCare program is found at http://www.sfasu.edu/judicial/earlyalert.asp or call the office at 936-468-2703.

Additional Information:

To complete Certification/Licensing Requirements in Texas related to public education and other professional settings, you will be required to:

1. Undergo criminal background checks for field or clinical experiences on public school campuses; the public school campuses are responsible for the criminal background check; YOU are responsible for completing the information form requesting the criminal background check. If you have a history of criminal activity, you may not be allowed to complete field or clinical experiences on public school campuses. At that point, you may want to reconsider your major while at SFASU.
2. Provide one of the following primary ID documents: passport, driver’s license, state or providence ID cards, a national ID card, or military ID card to take the TExES exams (additional information available at www.texas.ets.org/registrationBulletin/ <http://www.texas.ets.org/registrationBulletin/>). YOU must provide legal documentation to be allowed to take these mandated examinations that are related to certification/licensing requirements in Texas. If you do not have legal documentation, you may want to reconsider your major while at SFASU.
3. Successfully complete state mandated a fingerprint background check. If you have a history of criminal activity, you may want to reconsider your major while at SFASU.

For further information concerning this matter, contact Katie Snyder Martin at 936-468-1740 or snyderke1@sfasu.edu.

IX. Other Relevant Course Information:

ATTENDENCE:
More than one unexcused absence during the semester may lower your overall course grade by one letter grade. More than two absences may cause you to receive a failing grade for this course.

ASSIGNMENT POLICY:
All students are expected to complete assignments on the due date shown on the Calendar of Assignments. In order to receive an 'A' in the course, ALL assignments must be completed.
Failure to complete any assignment will result in an automatic reduction of the course grade earned by one letter grade, regardless of the total number of points earned. Written work in which the use of the English language is not at an acceptable level for a university senior will be returned to the intern marked "Unacceptable" and a zero assigned.

MAKE-UP WORK POLICY:
The decision whether to accept make-up work is at the discretion of the instructor. No make-up work will be accepted Dead Week or Finals Week.

LATE WORK POLICY:
No late work will be accepted.

I have read the ELE 301 syllabus and I understand I am expected to fulfill all of the requirements of the course.

_____________________________________ __________________________
Name (Signature) and Date

last updated August 21, 2017