ASU Teacher Education

ED 4314 Science: Instructional Strategies for the Elementary and Middle School Teacher
Course Syllabus – Spring 2020
(Revised)

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Course Title: ED 4314 Science: Instructional Strategies for the Elementary and Middle School Teacher

Day, Time & Location of Course: Online

Course Description:
This course emphasizes the integration of research and theories regarding the processes of learning science. The major science processes such as observing, experimenting, measuring, classifying, analyzing, interpreting, sequencing, recognizing properties and patterns, and inferring along with inquiry based science lesson planning and instruction. The TEKS concerning basic scientific information, methods, and materials will be addressed.

Materials Required:
- TaskStream Account (Lesson Planning and Dispositions)
- Single subject notebook or Composition Book

Methods of Instruction:
The instructional methods used in this class include, but are not limited to: online modules, discussion, collaborative groups, individualized projects, demonstrations, various forms of media, group presentations, interactive lecture, readings and field assignments. BLACKBOARD and TaskStream are utilized for communication, class assignments and information.

Course Requirements:
Candidates are expected to complete all classroom and out-of-classroom assignments in order to successfully complete the course. You are expected to check Blackboard for this class each day for notices and information. Print out and bring to class documents, when required, from Blackboard.

Virtual Field Experience:
Candidates will be responsible for completing 15 hours of virtual observations and reflections in elementary or middle school classrooms.

Learning Outcomes:
The following chart lists the learning outcomes for this course. Learning outcomes for this class are based on TEA, InTASC, ISTE, and the ASU Learning Goals. More information for each of these can be found at the Internet links listed below.
TEA Science Generalist EC-6 Standards

**Standard 1:** 1.2K – 1.8K The science teacher manages classroom, field, and laboratory activities to ensure the safety of all students and the ethical care and treatment of organisms and specimens.

**Standard 2:** 2.2K-2.6K The science teacher understands the correct use of tools, materials, equipment, and technologies.

**Standard 3:** 3.1K-2K. The science teacher understands the process of scientific inquiry and its role in science instruction.

**Standard 4:** 4.3K-4.13K The science teacher has theoretical and practical knowledge about teaching science and about how students learn science.

**Standard 5:** 5.3K-5.11K The science teacher knows the varied and appropriate assessments and assessment practices to monitor science learning.

**Standard 6:** The science teacher understands the history and nature of science.

**InTASC Standards** included in this class:

Standard 1 – Learner Development: a-k
Standard 2 - Learning Differences: a,c,e,h,l,n
Standard 3 – Learning Environments: a,c,d,f,l,j,k,l,m,n,o,p,q,and r
Standard 4 - Content Knowledge: a – h,k,l,n,q,r
Standard 5 – Application of Content: b,c,e,h,k,l,m,n,o,s
Standard 6 – Assessment: a,b,e,j,s
Standard 7 – Planning for Instruction: a,b,c,g,h,k,l,o,q
Standard 8 – Instructional Strategies: a,d,e,f,h,l,j,k,l,m,p,q,s
Standard 9 – Professional Learning and Ethical Practice: a,f,l,o
Standard 10 – Leadership ad Collaboration: b,o,r,t

**ISTE Teacher Technology Standards:**
1. Facilitate and inspire student learning and creativity
2. Design and develop digital age learning experiences and assessments
3. Model digital age work and learning

**ASU Learning Goals**
1. Students [candidates] will acquire knowledge in the humanities, the natural sciences, the social studies, and the arts, which collectively embody the human cultural heritage. Students [candidates] will develop their abilities to practice higher-level critical thinking.
2. Students [candidates] will become proficient in reading, writing, speaking, and listening. They will also develop quantitative literacy and technological literacy and technological fluency.
3. Students [candidates] will gain knowledge and skills appropriate both for their field of study and to enter into the professional sector and/or graduate school.
4. Students [candidates] will understand their responsibility as citizens in a complex, changing society.
Assignments:
See Blackboard for specific assignment information. A summary of class assignments is given below. Candidates will be expected to research and collect materials for their teaching and lesson planning. Other non-graded assignments may be given. All written assignments, presentations, media presentations, etc. must follow the writing style found in the most current edition of the American Psychological Association Publication Manual (APA Manual) which is available at the ASU library, at the bookstore, or on-line at www.apa.org

ASU OP10.04 Academic Regulations Concerning Student Performance
http://www.angelo.edu/opmanual/#s1

Course Evaluation and Grading:
1. Safety Module – 30 points:
Candidates will be expected to complete an online TEA course that covers general safety precautions necessary for elementary and middle school classrooms.

2. Science Lesson Plans – 4 x 25 points each = 100 points:
Candidates will be expected to construct detailed lesson plans that use the various strategies taught in class. All lesson plans will align with the TEKS. Taskstream will be used to build lessons plans.

3. Nature of Science Reflection – 25 points
Candidates will reflect on the nature of science and how science is an integral part of daily life.

4. Science Journal Reflection – 20 points
Candidates will read and reflect on articles from NSTA journals using either Science and Children or Science Scope.

5. Science Notebook/TExES Portfolio – 25 points
Candidates will be expected to keep a science notebook and a section that reviews and outlines all of the TExES Science competencies. This will be discussed in class.

6. Virtual Field Observations – 50 points:
Candidates will complete 15 hours of virtual field observations with reflections.

Grading: All teacher certification candidates must obtain a C or better in every education course.

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225 - 250 \text{ points} &= \text{A} \\
200 - 224 \text{ points} &= \text{B} \\
175 - 199 \text{ points} &= \text{C} \\
174 \text{ points or below} &= \text{F}
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Attendance Policy:
As a developing teacher, your ability to demonstrate a positive and professional disposition toward your peers, assignments, practicum teacher, and the instructor is essential. Candidates are expected to
engage and complete the online modules in a timely manner and abide by the due dates listed in the course timeline.

Candidates are to adhere to all ASU policies concerning attendance. Policies are listed below
OP 10.04 and Unit policy http://www.angelo.edu/opmanual/#s10
OP10.19 Student Absence for Observance of Religious Holy Day http://www.angelo.edu/opmanual/#s10

Persons Seeking Accommodations:
Persons with disabilities, which may warrant academic accommodations, must contact the Student Life Office, Room 112 University Center, in order to request such accommodations prior to any accommodations being implemented. Candidates are encouraged to make this request early in the semester so that appropriate arrangements can be made. ASU OP 10.15 Providing Accommodations for Students with Disabilities http://www.angelo.edu/opmanual/#s10

Academic Honesty:
Angelo State University expects its students to maintain complete honesty and integrity in their academic pursuits. Teacher education candidates are responsible for understanding and following the ASU Academic Honor Code, which is contained in both print and web versions of the Student Handbook. (www.angelo.edu/cstudent/documents/pdf/Student_Handbook.pdf) With regards to plagiarism, specific conditions for courses taught in the Department for Teacher Education apply as follows. At the first incident of plagiarism, the student will receive a zero (0) for the plagiarized assignment and this infraction will be noted on the student's records. Should there be a second occurrence of plagiarism, the student will receive a final grade of F for the course and another infraction report will be added to the student's permanent records.

Angelo State Title IX Policy Statement:
Angelo State University is committed to providing an environment where students, faculty, and staff, are free from sex discrimination and sexual misconduct. The term sexual misconduct encompasses sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, domestic violence, dating violence, and all other misconduct based on sex. You can report incidents of sex discrimination or sexual misconduct to the Office of Title IX Compliance. Submit reports online at the angelo.edu incident form. Submit reports in person at: Mayer Administration Building, Room 210 Phone: 942-2022 E-Mail: michelle.boone@angelo.edu
Please note that faculty members at Angelo State are required to report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact: University Counseling Center: 942-2371 24-Hour Crisis Helpline: 486-6345 University Health Clinic: 942-2171 Please visit: www.angelo.edu/title-ix for more information or resources related to this policy.

Blackboard:
Candidates must access BLACKBOARD for electronic posting of syllabus, assignments, announcements, grading information, and completion of assignments. etc. Contact the ASU Help Desk at 325-942-2911 to learn about BLACKBOARD and accessing it. Do this before the second
day of class. All written assignments must be typed.

**Other Items**
Web Sites:
http://blackboard.angelo.edu/ Blackboard access at Angelo State University
www.tea.state.tx.us Texas Education Agency
www.sbec.state.tx.us State Board for Educator Certification (Texas) www.apa.org
American Psychological Association
http://texas.ets.org/assessts/pdf/testprep_manuals/ TExES preparation manuals and lists of
competencies for state testing

**Class Schedule (Tentative)**
Week 1  Introduction to course, review syllabus.
Week 2  What is the nature of science?
Week 3  Science Inquiry – Process skills
Week 4  Science Inquiry – Process skills
Week 5  Models for teaching and planning science
Week 6  Assessment
Week 7  5E Model for teaching and planning science
Week 8  5E Model for teaching and planning science
Week 9-10 Spring Break
Week 11-12 Module 1 Science Notebooks
Week 13-14 Module 2 Lesson Planning
Week 15-16 Module 3 Virtual Field Experience