**CAMPBELLSVILLE UNIVERSITY**

**COURSE SYLLABUS**

# PLEASE TYPE. DATE 1/19/2016

ACADEMIC UNIT School of Education

Please check to indicate this course has a service learning component.

FACULTY R. Magruder

Discipline Course# Section

Title of Course Credit Hours Cross Reference

(if applicable)

ED 343-01 Science Methodology 3.0

TEXTBOOK Required Not Required

Author DeRosa, D.A. & Abruscata, J.

Title Teaching Children Science

Publisher Pearson

Date of Publication 2015

WORKBOOK

Author

Title

Publisher

Date of Publication

PLEASE ANSWER THE FOLLOWING QUESTIONS ON A SEPARATE SHEET OF PAPER AND ATTACH TO THIS FORM.

1. DESCRIPTION OF COURSE: Develop a brief description of the course as it will appear in the Catalog.
2. STUDENT LEARNING OBJECTIVES: List the student learning objectives for the course. Please relate these objectives to the mission and goals of the University and the Academic Unit. For general education courses, please indicate which student learning objectives address general education goals and the intended method of assessment. A minimum of four of the seven general education goals must be included.

*Example: Students will demonstrate their ability to compare and contrast two types of basket weaving. (Goal: Oral and Written Communication; Evidence: research paper and class presentation)*

1. COURSE OUTLINE: Outline the topics/units that are to be taught.
2. EVALUATION: How do you plan to determine the grade in the course? Please include grading scale.
3. REQUIREMENTS:
   1. Examinations: State when tests are to be administered, including unit, mid-term, and final examinations.
   2. Reports: How many, length required, and what type (Oral, term and/or research, book critiques).
   3. Supplemental reading assignments or outside work required.
   4. Supplemental instruction aids: Audio visual aids, field trips, guest speakers, etc.
4. BOOKLIST

DEAN: Beverly Ennis Date Copy Received

VICE PRESIDENT FOR ACADEMIC AFFAIRS Date Copy Received

FORM FH-E.2.7A; rev. 12/21/10 Page 1 of 1

1. Description of Course

This course is designed to familiarize pre-service teachers with processes of thinking about concepts of science that are taught to students in the P-5 level. Pre-service teachers explore national and state standards for science including the Kentucky Common Core Standards and Next Generation Science Standards as well as other appropriate standard documents. Instructional materials, strategies, and evaluation tools will be investigated noting response to developmental and diverse needs of learners. The course will include research on effective schools and best practices (implications for teaching).

1. Student Learning Objectives

Upon completion of this course, the pre-service teacher will have a better understanding of the following principles related to classroom instruction:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Objective | Kentucky Teacher Standard (KTS) | Professional Growth and Effectiveness System (PGES) | National Council for Accreditation of Teacher Education (NCATE) | Standards for Reading Professionals (IRA) |
| Demonstrate knowledge of science through design of appropriate learning strategies for all P-5 students. | 1 | 1 | 1 | 1 |
| Design, implement, and reflect on instructional experiences that integrate curriculum across disciplines, especially English Language Arts/Literacy Standards. | 2 | 1, 3, 4 | 1 | 1 |
| Engage all students in problem solving and inquiry as major strategies in teaching science. | 2 | 3 | 1 | 2 |
| Improve knowledge of science resources, including technology. | 6 | 1 | 1 | 2,5 |
| Increase knowledge of and familiarity with Next Generation Science Standards (NGSS). | 8 | 1, 4 | 1 | 2 |
| Apply the connections to Kentucky Teacher Standards (KTS), Professional Growth and Effectiveness System Domains (PGES), and other appropriate documents to instructional planning. | 2 | 4 |  | 2 |
| Improve differentiation skills to meet the needs of all learners (e.g. multicultural, gender, socioeconomic, academic). | 2 | 1 | 4 | 4 |
| Explore assessment of and for student learning of science. | 2, 5 | 3 |  | 3 |
| Design science instruction to empower students to function successfully in a diverse global society. | 4 | 1 | 4 | 2,4 |
| Explore positive relationships with parents and community. | 8 | 4 |  |  |
| Interrelationship of basic concepts and philosophy of education to praxis. |  | 1, 2, 3, 4 | 1, 3 | 1,2 |
| Explore relationships of P-5 science concepts and praxis   * + Identifying purpose for teaching science content   + Identifying interdisciplinary nature of science   + Planning, implementing, evaluating/assessing instruction (practice teaching, field experiences, observing, discussing, and reflecting on teaching)   + Awareness of understanding of diversity (e.g., cultural, economic) as it affects students’ learning and teachers’ instruction   + Creating and/or selecting instructional technologies and materials   + Knowledge of various strategies for engagement of all students for success in science |  | 1, 2, 3, 4 | 1 | 1,2,3,4 |

1. Course Outline

|  |
| --- |
| Introduction to course  Overview of syllabus  Field Experiences/PPD  What is science?  Pendulum  Next Generation Science Standards (NGSS)  Integrating Technology in Science (Explore Learning Gizmos)  PRAXIS  5E Learning Model  Physical Science: Heat Transfer  Classification (Shark teeth, shells)  Science Notebooks  Inference or Observation  Physical Science:  Gravity Racers  Science Classroom Discussions and Units  Physical Science: Electric Circuits  Engineering in the Science Classroom  Physical Science: Energy Transfer and Transformation  Physical Science: Fuel Sleuths  Integrating Science and Social Studies  Physical Science: Waves and Wavelength  Assessment of Science Education  Life Science: Fast Plants  Life Science: Fast Plants  Integrating Science and Mathematics  Life Science: Owl Pellets  Extracurricular Science Activities  Life Science: Birds and Worms  Oh Deer!  Life Science: Tree Life Cycle  Resource Go Round  Life Science: How it’s Made  You Teach it Review Session  Differentiating Instruction for Special Needs  Earth Science: Moon Journal  Earth, Moon, and Mars  Earth Science: Solar System Beads  Seasons  Earth Science: Phases of the Moon  Shadows that Enlighten  Earth Science: Water Cycle  A Drop in the Bucket  Carbon Cycle  Earth Science: Save the Penguins  Earth Science: Save the Penguins |

1. *Evaluation*

|  |  |  |
| --- | --- | --- |
| **Due Date** | **Assignment** | **Point Value** |
| January 28  April 7  April 28 | Explore Learning Gizmos  (3 @ 25 points each)  Physical Science Gizmo  Life Science Gizmo  Earth Science Gizmo  Gizmo Reflection | 75  50 |
| January 26  February 2  February 11  March 1  March 24  May 3 | Science Notebook Prompts  (6 @ 25 points each) | 150 |
| February 25 | Active Science Lesson, 3 Field Hours, and Reflection | 80 |
| March 8 | Fuel Sleuth Class Wiki | 100 |
| March 10 | Exam One | 100 |
| March 22 | Science Literature Lesson, 3 Field Hours, and Reflection | 80 |
| April 7 | Constructed Response, Lesson, 3 Field Hours, Analysis, and Reflection | 120 |
| April 12 | Exam Two | 100 |
| April 19 | Science Technology Lesson | 50 |
| April 26 | Active Science Lesson | 50 |
| April 28 | Project WET, WILD, Learning Tree Lesson | 50 |
| May 5 | PPD | 30 |
| May 5 | Field Trip Field Hours and Reflection | 50 |
| TBA | Final Exam | 100 |
| May 6 | Final Version of Unit | 70 |
|  | Total\*  \*May be revised as needed. | 1235 points |

**Grade Calculation**

Assuming punctual, regular attendance and effective participation, grades will be determined using the following scale:

|  |  |  |
| --- | --- | --- |
| Percentage | Points | Grade |
| 93 -100% | 1516-1630 | A |
| 83 - 92 % | 1353-1515 | B |
| 73 - 82% | 1190-1352 | C |
| 65 – 72 % | 1060-1189 | D |
| 64% or below | <1060 | F |

1. Requirements

**Science Unit**

**(100 points per lesson)**

You will be responsible for creating the following five lessons and then incorporating them into a cohesive unit. The KTIP lesson plan format must be used for all lessons and at least three of them must include the 5E format. The two starred activities will be taught in a public school and will require a reflection. More details and a scoring guide will be provided for each lesson. School of Education unit requirements and documents must be completed.

* Science Lab Lesson \*
* Science Literature Lesson\*
* Science Technology Lesson
* Project WET, Project Wild, or Project Learning Tree Lesson
* Science Lab Lesson

**Field Experience**

**(10 points per field hour)**

Candidates will complete **twelve hours** of field work including **three hours** observing/coteaching and implementing a science lab lesson in the 5E format. **Three hours** of field work will involve observing/coteaching in a classroom, creating and implementing a constructed response assessment. Data will also be analyzed. **Three hours** will include observing/coteaching and teaching a lesson linking literature to science content. The **final three hours** will include planning, organizing, or assisting in an extra-curricular event such as a science fair, or science family night in a local elementary school.

Field hours must be entered into the Kentucky Field Experience Tracking System (KFETS) prior to the due date for two of the ten points for each hour. Late submissions will not be counted for points. Each hour of field requires a one page reflection.

**Explore Learning Gizmos**

**(20 points per Gizmo, 50 points for reflection)**

ED 343 students will receive a unique log-in code for Explore Learning Gizmos. They will be responsible for completing the Student Exploration Sheets and turning in a paper copy at the beginning of class. **Students will also write one paragraph summarizing what they learned from the gizmo in their science notebooks**. Students are also responsible for completing Assessment Questions online. The purpose of these gizmos is to become familiar with science content, as well as experience an integration of quality technology in the classroom.

**Science Notebook Prompts**

The following rubric will be used to review and assess student essays written as a response to provided prompts and included in science notebooks.

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Does Not Meet Criteria** | **Progress Toward Criteria** | **Meets Criteria** |
| Clearly addresses all parts of the writing prompt | Few parts of the prompt are addressed or parts are not addressed clearly (3 points) | The majority of the prompt parts are addressed clearly  (6 points) | All parts of the prompt are addressed clearly  (10 points) |
| Supports main ideas with details and examples from the reading and personal experiences | Does not include examples or details or the ones provided are not relevant to the reading (3 points) | Includes few examples to support the main idea  (6 points) | Includes well-defined examples and details taken from readings and personal experiences to support the main idea (10 points) |
| Contains few, if any errors in the conventions of the English language, and follows the format guidelines   * 2 page minimum * 3 page maximum | More than five errors in English language conventions; less than one page  (1 point) | Two to five errors in English language conventions; 1 page  (3 points) | One or less errors in English language conventions  (5 points) |

**Pre-Professional Development**

**(30 points)**

ED 341 students are required to attend **three (3) hours** of PPD outside of class time. PPD seminars are held on campus and include topics regarding educational issues for pre-service teacher development. The schedule is available on the School of Education website. All PPD sessions should be clearly logged on the attached PPD Summary Form with a signature of the presenter to verify attendance. Students will type a **one page reflection** for each PPD and attach it to the PPD form. PPD reflections should answer the following questions:

1. What is your description of the PPD session attended?
2. What do you like/dislike about the PPD session?
3. What did you learn from the session?
4. What would you change and why?
5. How can you apply the lessons learned?
6. What types of diversity did you learn about?

**A professional development seminar is tentatively scheduled for spring in which you will receive certification to teach Project WET, Project Wild, and Project Learning Tree. More information will be provided as soon as possible.**

NOTE: The Teacher Education Program requires completion of at least 230 field and PPD hours (200 field and 30 PPD hours) prior to student teaching semester. All education courses require field and PPD hours leading up to the total 230 hours.

1. Booklist

NA

ED 343: Science Methodology

**Syllabus**

**Spring 2016**

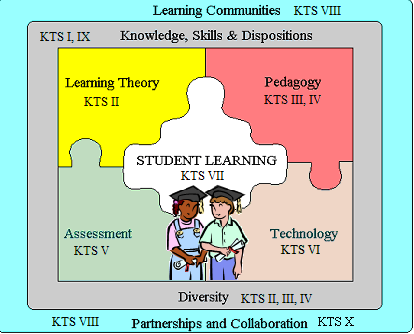
**Tuesday, Thursday 9:30 am to 10:45 am**

**EB 127**

**School of Education Conceptual Framework:**

**Theme: Empowerment for Learning- Content, Process, Self-Efficacy**

**EPSB Themes- Diversity, Assessment, Literacy Education, Closing the Achievement Gap**



|  |  |
| --- | --- |
| Instructor | Dr. Robin Magruder |
| Office Location | EB 112 |
| Email | [rlmagruder@campbellsville.edu](mailto:rlmagruder@campbellsville.edu) |
| Office Hours | **Tuesday** 9:00 am-9:30 am; 11:00 am-2:30 pm  **Thursday** 9:00 am-9:30 am; 11:00 am-2:30 pm  **Friday** Second and Fourth Fridays 11:00 am-2:00 pm  Or by appointment |
| Office Phone | (270) 789-5139 |
| Preferred method for contacting instructor | Email |
| Course Website | Please access this course via TigerNet |
| Campus Security Cell Phone | (270) 403-3611 |
| Campus Security Office | (270) 789-5556 |
| Required Textbook | Derosa, D.A., & Abruscata, J. (2015). *Teaching children science*. Boston: Pearson. |

**Prerequisite**

Admittance to Teacher Education Program

**Course Description**

This course is designed to familiarize pre-service teachers with processes of thinking about concepts of science that are taught to students in the P-5 level. Pre-service teachers explore national and state standards for science including the Kentucky Common Core Standards and Next Generation Science Standards as well as other appropriate standard documents. Instructional materials, strategies, and evaluation tools will be investigated noting response to developmental and diverse needs of learners. The course will include research on effective schools and best practices (implications for teaching).

**Course Objectives**

**PROFESSIONAL STANDARDS addressed in this course:**

**Kentucky Teacher Standards (*KTS*)**

Standard 1 The Teacher Demonstrates Applied Content Knowledge

Standard 2 The Teacher Designs and Plans Instruction

Standard 3 The Teacher Creates and Maintains Learning Environment

Standard 4 The Teacher Implements and Manages Instruction

Standard 5 The Teacher Assesses and Communicates Learning Results

Standard 6 The Teacher Demonstrates the Implementation of Technology

Standard 7 Reflects On and Evaluates Teaching and Learning

Standard 8 Collaborates with Colleagues/Parents/Others

**CU Diversity Proficiencies (from KTS)**

KTS 1.2 Connects content to life experiences of student

KTS 2.2 Uses contextual data to design instruction relevant to students

KTS 2.4 Plans instructional strategies & activities that address learning objectives for all students

KTS 3.3 Values and supports student diversity and addresses individual needs

KTS 6.3 Integrates student use of available technology into instruction to enhance learning outcomes and meet diverse student needs.

**Teacher Professional Growth and Effectiveness Standards (*TPGES*)**

Domain 1Planning and Preparation

Domain 2 Classroom Environment

Domain 3 Instruction

Domain 4 Professional Responsibilities

**Interstate Teacher Assessment and Support Consortium** (***InTASC***)

InTASC 1 Learner Development

InTASC 2 Learner Differences

InTASC 3 Learning Environments

InTASC 4 Content Knowledge

InTASC 5 Application of Content

InTASC 6 Assessment

InTASC 7 Planning for Instruction

InTASC 8 Instructional Strategies

InTASC 9 Professional Learning and Ethical Practice

InTASC 10 Leadership and Collaboration

**International Literacy Standards (*ILS*)**

Standard 1 Foundational Knowledge

Standard 2 Curriculum and Instruction

Standard 3 Assessment and Evaluation

Standard 4 Diversity

Standard 5 Literate Environment

Standard 6 Professional Learning and Leadership

**Council for Accreditation of Educator Programs (*CAEP*)**

Standard 1 Content and Pedagogical Knowledge

Standard 2 Clinical Partnerships and Practice

Standard 3 Candidate Quality, Recruitment, and Selectivity

Standard 4 Program Impact

Standard 5 Provider Quality Assurance and Continuous Improvement

**Specialized Professional Association (SPA) Standards**

National Science Teachers Association

Upon completion of this course, the pre-service teacher will have a better understanding of the following principles related to classroom instruction:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Objective | Activities | Kentucky Teacher Standard (KTS) | Teacher Professional Growth and Effectiveness System (TPGES) | Interstate Teacher Assessment and Support Consortium (InTASC) | National Council for Accreditation of Teacher Education (NCATE) | Standards for Reading Professionals (ILA) | Council for Accreditation of Educator Programs (CAEP) |
| Demonstrate knowledge of science through design of appropriate learning strategies for all P-5 students. | Science Unit  Gizmos  Extracurricular Event | 1 | 1 | 4 | 1 | 1 | 1 |
| Design, implement, and reflect on instructional experiences that integrate curriculum across disciplines, especially English Language Arts/Literacy Standards. | Science Unit  Extracurricular Event | 2 | 1, 3, 4 | 7 | 1 | 1 | 1 |
| Engage all students in problem solving and inquiry as major strategies in teaching science. | Science Unit  Extracurricular Event | 2,3 | 3 | 1,3 | 1 | 2 | 1 |
| Improve knowledge of science resources, including technology. | Science Unit  Gizmos  Fuel Sleuth Class Wiki | 6 | 1 | 7 | 1 | 2,5 | 1 |
| Increase knowledge of and familiarity with Next Generation Science Standards (NGSS). | Science Unit | 8 | 1, 4 | 4,5 | 1 | 2 | 2 |
| Apply the connections to Kentucky Teacher Standards (KTS), Professional Growth and Effectiveness System Domains (PGES), and other appropriate documents to instructional planning. | Science Unit | 2 | 4 | 5 |  | 2 | 1,2 |
| Improve differentiation skills to meet the needs of all learners (e.g. multicultural, gender, socioeconomic, academic). | Science Unit | 2 | 1 | 2 | 4 | 4 | 1 |
| Explore assessment of and for student learning of science. | Science Unit  Constructed Response | 2, 5 | 3 | 6 |  | 3 |  |
| Design science instruction to empower students to function successfully in a diverse global society. | Science Unit  Extracurricular Event  Fuel Sleuth Class Wiki | 4 | 1 | 1,2 | 4 | 2,4 | 1 |
| Explore positive relationships with parents and community. | Extracurricular Event | 8 | 4 |  |  |  | 2 |
| Interrelationship of basic concepts and philosophy of education to praxis. | Science Unit  Science Notebook |  | 1, 2, 3, 4 | 7 | 1, 3 | 1,2 |  |
| Explore relationships of P-5 science concepts and praxis  Identifying purpose for teaching science content  Identifying interdisciplinary nature of science  Planning, implementing, evaluating/assessing instruction (practice teaching, field experiences, observing, discussing, and reflecting on teaching)  Awareness of understanding of diversity (e.g., cultural, economic) as it affects students’ learning and teachers’ instruction  Creating and/or selecting instructional technologies and materials  Knowledge of various strategies for engagement of all students for success in science | Science Unit  Gizmos | 3,7 | 1, 2, 3, 4 | 1,2,3,4,5,7,8 | 1 | 1,2,3,4 | 1 |

|  |
| --- |
| **Disability Statement**  Campbellsville University is committed to reasonable accommodations for students who have documented physical and learning disabilities, as well as medical and emotional conditions.  If you have a documented disability or condition of this nature, you may be eligible for disability services.  Documentation must be from a licensed professional and current in terms of assessment.  Please contact the Coordinator of Disability Services at 270-789-5192 to inquire about services.  **Plagiarism Policy**  Campbellsville University’s policy on Academic Integrity states: “Each person has the privilege and responsibility to develop one’s learning abilities, knowledge base, and practical skills. We value behavior that leads a student to take credit for one’s own academic accomplishments and to give credit to others’ contributions to one’s course work. These values can be violated by academic dishonesty and fraud.” (2015-17 Bulletin Catalog). Plagiarism and cheating are examples of academic dishonesty and fraud and neither will be tolerated in this course. Plagiarism is quoting or paraphrasing a phrase, a sentence, sentences, or significant amounts of text from a web or print source, without using quotation marks and without a citation. The plagiarist submits the work for credit in a class as part of the requirements for that class. Examples of cheating include cheating on a test (copying off someone else’s paper) or an assignment (e.g., development of a lesson plan) and submitting the work as your own. If a student commits plagiarism or cheats in this course, the professor will decide on one of two penalties: (a) an F on that assignment or (b) an F in the course. The student’s Dean and the Vice-President for Academic Affairs will be notified of either consequence.  **School of Education Attendance Policy**  Regular attendance in professional education courses is expected of all students. It is a professional responsibility that is a part of the disposition assessment of teacher candidates. No more than six (6) absences for Monday/Wednesday/Friday courses and No more than four (4) absences for Tuesday/Thursday courses. Absences in excess of these numbers of days will result in an **F** for the course. Tardy is defined as missing 10 minutes or less of class time due to late arrival or early departure.  An accumulation of two tardy instances will equate to one day of absence to be applied to the course attendance policy.  Anything more than 10 minutes and less than 30 minutes of missed class time will result in a half day absence.  More than 30 minutes of missed class time will be considered a full day. Your arrival and departure time are as important as your presence regularly.  This is essential for a smooth classroom experience for you and your classmates now as well as the expectation you will face as a classroom teacher when employed later. *Note: students will not be penalized for absences excused by Campbellsville University; however, it is the student’s responsibility to notify the professor in advance of the excused absence.* It is also the student’s responsibility to insure that all assignments are submitted on due dates, regardless of date(s) of absences.  **Incomplete Statement**  A grade of “I” is assigned to a student when the course requirements are not completed due to illness, accident, death in the immediate family, or other verifiable, extenuating circumstances. The course requirements to change the “I”; grade must be completed within 12 months from the time awarded. It is the student’s responsibility to complete requirements within the 12 month period. It is the professor’s responsibility to change the grade by filling out the proper forms in the Office of Student Records.  **Title IX Statement**  Campbellsville University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires all responsible employees, which includes faculty members, to report incidents of sexual misconduct shared by students to the University's Title IX Coordinator.  Title IX Coordinator: Terry VanMeter; 1 University Drive; UPO Box 944; Administration Office 8A; Phone – 270-789-5016; Email – [twvanmeter@campbellsville.edu](mailto:twvanmeter@campbellsville.edu)  Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: [www.campbellsville.edu/titleIX](http://www.campbellsville.edu/titleIX)  **Student Academic Progress (SAP)**  Department of Education federal regulations require Campbellsville University to monitor its student's academic progress to ensure that they maintain a minimum standard GPA and make steady progress toward degree completion. Students who do not meet the SAP requirements may lose their financial aid eligibility.  All students that were enrolled during the current school year and those who have submitted a FAFSA for the upcoming year will be evaluated for SAP at the end of each term including summer. See your Student Handbook for specific details and/or discuss with your advisor.  **Communication Requirement**  Students are expected to activate and regularly use the university provided email domain (studentname@stu.campbellsville.edu) for all email communication for this class. |
| **Submission of Assignments**  Assignments are to be typed in double space format using 12 point Times New Roman font and saved in .doc, .docx, or .pdf format. PLEASE DO NOT SUBMIT MAC DOCUMENTS AS I CANNOT OPEN THEM. Please save your documents in the following format: ***Last name\_first name\_ assignment*, for example, *Magruder\_Robin\_Philosophy*.** Margins should be no less than one inch on all sides. Please include name, course, assignment title, and date in top right corner of first page and include last name as a header of the following pages.  Assignments will be preferably uploaded to TigerNet. If there are technical difficulties, feel free to turn in a paper copy on the day the assignment is due. See syllabus schedule of activities for specific information on assignment submissions.  Assignments are due at the beginning of class on announced due dates. Pre-service teachers can expect to lose 5 points for each day an assignment is late. Assignments are due on the due date even if you are absent.  **PLEASE DO NOT ASK FOR EXTRA CREDIT OPPORTUNITIES, DO YOUR BEST ON ALL ASSIGNMENTS DURING THE SEMESTER.**  **Participation and Professionalism**  You are responsible for your own education. Each pre-service teacher is valuable to the success of this course. To be engaged, you need to participate, that is, speak. To participate, you must attend.  **PLEASE DO NOT USE CELL PHONES, IPADS, OR LAPTOPS IN CLASS UNLESS THE USAGE IS RELATED TO THE TOPIC AT HAND.** Students who fail to attend class on a regular basis, participate as expected, and/or conduct themselves professionally or ethically will be required to meet with the instructor to set improvement goals. |

**Grades**

|  |  |  |
| --- | --- | --- |
| **Due Date** | **Assignment** | **Point Value** |
| January 28  April 7  April 28 | Explore Learning Gizmos  (3 @ 25 points each)  Physical Science Gizmo  Life Science Gizmo  Earth Science Gizmo  Gizmo Reflection | 75  50 |
| January 26  February 2  February 11  March 1  March 24  May 3 | Science Notebook Prompts  (6 @ 25 points each) | 150 |
| February 25 | Active Science Lesson, 3 Field Hours, and Reflection | 80 |
| March 8 | Fuel Sleuth Class Wiki | 100 |
| March 10 | Exam One | 100 |
| March 22 | Science Literature Lesson, 3 Field Hours, and Reflection | 80 |
| April 7 | Constructed Response, Lesson, 3 Field Hours, Analysis, and Reflection | 120 |
| April 12 | Exam Two | 100 |
| April 19 | Science Technology Lesson | 50 |
| April 26 | Active Science Lesson | 50 |
| April 28 | Project WET, WILD, Learning Tree Lesson | 50 |
| May 5 | PPD | 30 |
| May 5 | Field Trip Field Hours and Reflection | 50 |
| TBA | Final Exam | 100 |
| May 6 | Final Version of Unit | 70 |
|  | Total\*  \*May be revised as needed. | 1235 points |

**Grade Calculation**

Assuming punctual, regular attendance and effective participation, grades will be determined using the following scale:

|  |  |  |
| --- | --- | --- |
| Percentage | Points | Grade |
| 93 -100% | 1149-1235 | A |
| 83 - 92 % | 1025-1148 | B |
| 73 - 82% | 902-1024 | C |
| 65 – 72 % | 803-901 | D |
| 64% or below | <803 | F |

Whole letter grade (A-F) will be earned. Students must earn at least a C grade in all education classes or they will have to be repeated.

**Instructions for Required Assignments**

**Science Unit**

**(50 points per lesson)**

You will be responsible for creating the following five lessons and then incorporating them into a cohesive unit. The KTIP lesson plan materials and 5E lesson format must be used for all lessons. The two starred activities will be taught in a K-5 classroom and will require a KTIP reflection. More details and a scoring guide will be provided for each lesson. School of Education unit requirements and documents must be completed.

* Active Science Lesson \*
* Science Literature Lesson\*
* Science Technology Lesson
* Project WET, Project Wild, or Project Learning Tree Lesson
* Active Science Lesson

**Field Experience**

**(10 points per field hour)**

Candidates will complete **twelve hours** of field work in ED 343.

1. **Three hours** will be obtained by observing/coteaching and implementing an active science lesson in the 5E format (2 hours observing, 1 hour teaching). You are responsible for finding a teacher/classroom for these field hours. **Your lesson must be approved prior to implementation. This lesson will be part of the unit created in ED 343.**
2. **Three hours** will be obtained by observing/coteaching and teaching a lesson linking literature to science content (2 hours observing, 1 hour teaching). This should be in the same classroom as the previous hours if possible. **Your lesson must be approved prior to implementation. This lesson will be part of the unit created in ED 343.**
3. **Three hours** will be obtained by observing/coteaching in a classroom, creating and implementing a constructed response assessment (2 hours observing, 1 hour teaching). Data will also be analyzed. **Your constructed response must be approved prior to implementation.**
4. **Three hours** will be obtained by hosting a field trip for elementary school students. This will be a class project; more information will be provided.

Field hours must be entered into the Kentucky Field Experience Tracking System (KFETS) prior to the due date for two of the ten points for each hour. Late submissions will not be counted for points. Each hour of field requires a one page reflection.

**Explore Learning Gizmos**

**(25 points per Gizmo, 50 points for reflection)**

ED 343 students will receive a unique log-in code for Explore Learning Gizmos. They will be responsible for completing the Student Exploration Sheets and turning in a paper copy at the beginning of class. **Students will also write one paragraph summarizing what they learned from the gizmo in their science notebooks**. Students are also responsible for completing Assessment Questions online. The purpose of these gizmos is to become familiar with science content, as well as experience an integration of quality technology in the classroom.

CLASS CODE: **9BU8MAPYME**

ED 343 students will also write a two page reflection on gizmos after the completion of them all. Discuss strengths, weaknesses of gizmos, what you learned, and how you plan to use Explore Learning Gizmos in your own classroom.

**Science Notebook Prompts (25 points per reflection)**

The following rubric will be used to review and assess student essays written as a response to provided prompts and included in science notebooks.

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Does Not Meet Criteria** | **Progress Toward Criteria** | **Meets Criteria** |
| Clearly addresses all parts of the writing prompt | Few parts of the prompt are addressed or parts are not addressed clearly (3 points) | The majority of the prompt parts are addressed clearly  (6 points) | All parts of the prompt are addressed clearly  (10 points) |
| Supports main ideas with details and examples from the reading and personal experiences | Does not include examples or details or the ones provided are not relevant to the reading (3 points) | Includes few examples to support the main idea  (6 points) | Includes well-defined examples and details taken from readings and personal experiences to support the main idea (10 points) |
| Contains few, if any errors in the conventions of the English language, and follows the format guidelines   * 2 page minimum * 3 page maximum | More than five errors in English language conventions; less than one page  (1 point) | Two to five errors in English language conventions; 1 page  (3 points) | One or less errors in English language conventions  (5 points) |

**Fuel Sleuth Class Wiki**

**(100 points)**

Students will create a class wiki based on a topic assigned in class. This class wiki will be shared in class. More information and a scoring rubric will be provided in class.

**Pre-Professional Development**

**(30 points)**

ED 341 students are required to attend **three (3) hours** of PPD outside of class time. PPD seminars are held on campus and include topics regarding educational issues for pre-service teacher development. The schedule is available on the School of Education website. All PPD sessions should be clearly logged on the attached PPD Summary Form with a signature of the presenter to verify attendance. Students will type a **one page reflection** for each PPD and attach it to the PPD form. PPD reflections should answer the following questions:

1. What is your description of the PPD session attended?
2. What do you like/dislike about the PPD session?
3. What did you learn from the session?
4. What would you change and why?
5. How can you apply the lessons learned?
6. What types of diversity did you learn about?

**A professional development seminar is tentatively scheduled for spring in which you will receive certification to teach Project WET, Project Wild, and Project Learning Tree. More information will be provided as soon as possible.**

NOTE: The Teacher Education Program requires completion of at least 230 field and PPD hours (200 field and 30 PPD hours) prior to student teaching semester. All education courses require field and PPD hours leading up to the total 230 hours.

**The tentative Schedule of Topics, Required Readings, and Assignments follow this page. A summary of the assignment due dates and exams dates are outlined above. Please refer to assignment descriptions, found at the end of this document, for specific assignment details.**

**Tentative Schedule of Topics and Required Reading**

\*The instructor reserves the right to modify this schedule as necessary. Students will receive adequate notice if this occurs.

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Topic Emphasized** | **Required Reading**  **(Should be complete prior to class)** | **Assignments and Due Dates** |
| **Week One**  Thursday, January 21 | Introduction to course  Overview of syllabus  Field Experiences/PPD  What is science? | Chapter One: Inquiry: The Path; Discovery: The Destination |  |
| **Week Two**  Tuesday, January 26 | Pendulum  NGSS (Next Generation Science Standards)  Integrating Technology in Science (Explore Learning Gizmos) | Chapter Two: Constructing Knowledge and Discovering Meaning: How Children Learn Science | Science Notebook Prompt One: Based on class discussions and chapters one and two of the text, describe an ideal elementary science classroom. |
| Thursday, January 28 | PRAXIS  5E Learning Model  Discuss Lesson Scoring Rubric and Active Science Lesson Assignment | Chapter Four: Planning and Managing | Physical Science Gizmo Due |
| **Week Three**  Tuesday, February 2 | 5E Learning Model  Physical Science: Heat Transfer |  | Science Notebook Prompt Two: Create a lesson sketch of a physical science lesson using the 5E Learning Model. |
| Thursday, February 4 | Classification (Shark teeth, shells)  Jellybean Dichotomous Key |  |  |
| **Week Four**  Tuesday, February 9 | Science Notebooks | Chapter Three: Constructing Knowledge and Discovering Meaning: How Children Learn Science |  |
| Thursday, February 11 | Physical Science Pretest  Physical Science: Force and Motion with the Avengers | Chapter Sixteen: Matter and Motion | Science Notebook Prompt Three: What is the value of integrating science notebooks in the classroom? What should be included in a science notebook? Create two writing prompts for physical science.  Active Science Lesson Due |
| **Week Five**  Tuesday, February 16 | Physical Science: Force and Motion  Discuss Science Literature Lesson | Chapter Seventeen: Energies and Machines |  |
| Thursday  February 18 | Physical Science:  Energy Project NEED |  |  |
| **Week Six**  Tuesday, February 23 | Physical Science: Energy Project NEED | Chapter Seven: Integrating Science and Engineering |  |
| Thursday, February 25 | Physical Science: Electric Circuits |  | Active Science Lesson, Field Hours, and Reflection Due |
| **Week Seven**  Tuesday, March 1 | Physical Science: Fuel Sleuths  Integrating Science and Social Studies | Chapter Eighteen: Physical Science Lesson Ideas | Science Notebook Prompt Four:  Read p. 321-328. Select an event or person shaping physical science. Write a brief report on this topic. List two outside sources. |
| Thursday, March 3 | Physical Science: Fuel Sleuths | Chapter Five: Strategies and QuickChecks | Science Literature Lesson Plan Due |
| **Week Eight**  Tuesday, March 8 | Physical Science Review |  | Fuel Sleuth Class Wiki Due |
| Thursday, March 10 |  |  | Exam  One  Turn in Science Notebook |
| March 14-18  SPRING BREAK  NO CLASS | | | |
| **Week Nine**  Tuesday, March 22 | Assessment of Science Education  Life Science Pretest  Discuss Constructed Response Assignment | Chapter Six: Assessment of Understanding and Inquiry | Science Literature Lesson, Field Hours and Reflection Due |
| Thursday, March 24 | Life Science: Fast Plants  Integrating Science and Mathematics | Chapter Thirteen: Living Things | Science Notebook Prompt Five: Create a list of summative and formative assessments. Describe three formative assessments and how they will be used in your classroom. |
| **Week Ten**  Tuesday, March 29 | Life Science: Owl Pellets  Extracurricular Science Activities | Chapter Fourteen: The Human Body | Constructed Response Lesson and Prompt Due |
| Thursday, March 31 | Life Science: Birds and Worms  Oh Deer! | Chapter Fifteen: Life Sciences Lesson Ideas |  |
| **Week Eleven**  Tuesday, April 5 | Life Science: Tree Life Cycle  Resource Go Round |  |  |
| Thursday, April 7 | Life Science: How it’s Made |  | Life Science Gizmo Due  Constructed Response Lesson Plan, Analysis, Reflection, and Field Hours Due |
| **Week Twelve**  Tuesday, April 10 | Differentiating Instruction for Special Needs  Discuss Technology Lesson  Review Life Science | Chapter Nine: Adapting the Science Curriculum |  |
| Thursday, April 12 |  |  | Exam Two  Turn in Science Notebook |
| **Week Thirteen**  Tuesday, April 19 | Earth Science Pretest  Earth Science: Moon Journal  Earth, Moon, and Mars  Solar System Beads | Chapter Eleven: The Cosmos | Science Technology Lesson Due |
| Thursday, April 21 | Earth Science: Phases of the Moon  Shadows that Enlighten |  |  |
| **Week Fourteen**  Tuesday, April 26 | Work on Class Project |  | Active Science Lesson Due |
| Thursday, April 28 | Earth Science: Water Cycle  A Drop in the Bucket  Carbon Cycle | Chapter Ten: Earth’s Surface, Atmosphere, and Weather | Physical Science Gizmo Due  Gizmo Reflection Due  Project WET, WILD, and Learning Tree Lesson Due |
| **Week Fifteen**  Tuesday, May 3 | Earth Science: Save the Penguins |  | Science Notebook Prompt Six: Complete and discuss the Make the CASE challenge on p. 200. |
| Thursday, May 5 | Earth Science: Save the Penguins |  | Field Trip Field Hours and Reflection Due  PPD Hours Due  Final Unit Materials Due Friday, May 6 |
| **Week Sixteen**  FINALS WEEK |  |  | Final Exam Date to Be Announced |