Reinhardt University

Price School of Education
Educating the Whole Person with Challenge and Care

General Course Information

Course Number and Title: EDU 461   Data: Teaching of Science
Semester: FALL 2023
Instructor: Kimberly Crowe
Location: Paul Jones Room 4
Time: Tuesday 12:15-3:15
Office: Paul Jones Office 108
Office Hours: Posted outside office
Phone: 770-720-9130 Cell: Will be given in class
Email: Kimberly.crowe@reinhardt.edu

Catalog Course Description

This DATA course presents candidates with methods, materials, and organizational techniques for
providing inquiry-based science in the differentiated early childhood classroom. Throughout the course,
candidates will discuss current curriculum issues in science education and develop an understanding of
science in light of present national (NSTA) and state education and reform issues, including Common Core
Georgia Performance Standards (CCGPS) and the STEM Initiative. During the 15-week DATA practicum
candidates will have opportunities to plan, implement, and evaluate lesson plans that address
differentiation of essential science content, instructional practices, and student products based on
student readiness, interest, and learning profile. This course will focus heavily on teacher candidate
proficiency development with scaffolded assistance from DATA instructors and should be taken during

the semester before the candidate teaching experience. Prerequisite: Stage II Admission to DATA Block

PSOE Credit Hour Policy

Over the 15 weeks of this course, students will spend 150 minutes per week of instructional time interacting with course content including, but not limited to, lectures, guest speakers, group work, class discussions, projects, presentations, virtual meetings, and assessments/exams (37.5 hours for the semester). Students will also spend approximately 300 minutes per week in out-of-class work including lesson planning, preparation of projects and presentations, reflection, discussion boards, homework, after-hour conferences, and study/review for exams and quizzes. Included within this out-of-class work is the 30-hour Field Experience and Observation for the semester.

Text/Course Website

A text in not required and the Course will use various websites/platforms during the class.

Important Course Note: LiveText Subscription is required. **Please bring your laptop and/or cell phone to each class.**

Technical Support:
Eagleweb or Email: https://eagleweb.reinhardt.edu/ICS/Help/EagleWeb_Help.jnz
Canvas Support: NMC@reinhardt.edu
General Technology: helpdesk@reinhardt.edu
LiveText: TCG@reinhardt.edu

PSOE Mission

The mission of all teacher preparation programs at Reinhardt University is to produce **reflective**, **problem-solving teachers** who respond to the diversity of student needs through differentiated instruction driven by ongoing assessment and adjustments within a nurturing environment.

Conceptual Framework

The PSOE teacher education conceptual framework establishes the shared vision in preparing educators to work in PK – 12 schools and provides direction for all programs, courses, teaching, candidate performance, scholarship, service, and unit accountability. The conceptual framework is built on three basic beliefs: (1) learner differences are understood, appreciated, and built upon through respectful, meaningful work in a collaborative, nurturing environment; (2) learner growth and success are developed through the process of ongoing assessment and adjusted instruction; and (3) teachers who are extremely knowledgeable about subject matter, a variety of wise and flexible instructional practices, and multiple options for assessment are better equipped to adjust essential curriculum content, their instructional practices, and student assessment options to address learner differences. The purpose of all PSOE teacher preparation programs is to prepare educators who can create a learning community of care and challenge. This purpose is realized through DATA instructional model that describes different approaches for teaching and assessment. The PSOE conceptual framework represents a strong commitment to the preparation of effective teachers who adapt instruction to support student's diverse learning needs and to maximize learning.

PSOE Essential Question (EQ) What are the best inquiry-based strategies to help students become scientist of tomorrow?

Course Relationship to Conceptual Framework

This DATA course specifically addresses the tenet that teachers who are extremely knowledgeable about
subject matter, a variety of wise and flexible instructional practices, and multiple options for assessment
are better equipped to adjust essential curriculum content, their instructional practices, and student
assessment options to address learner differences. The course will involve extensive field experience and
will focus on classroom application of the DATA instructional model as it relates to the curricular
integration of inquiry-based science in the early childhood classroom.

Reinhardt University Learning Outcomes

Communication

Students will demonstrate:

1. Effective expression of ideas through writing, speech, and visual media.

Critical Thinking and Inquiry

Students will demonstrate:

2. Integrative, critical thinking and inquiry-based learning using evidence, logic, reasoning, and calculation.
3. Knowledge of various research methodologies, information, technological, and scientific literacy.
4. Independent thought and imagination; preparation for lifelong learning.

Self, Society and Culture

Students will demonstrate:

5. Knowledge of the traditions of Western civilization and their global context.
6. Knowledge of the diversity of societies and cultures; the ability to view themselves and the world from cultural and historical perspectives other than their own.

Values and Ethics

Students will demonstrate:

7. Integrity and ethical responsibility.
8. Understanding of and commitment to physical, emotional, and spiritual wellness.
9. Stewardship and civic engagement, coupled with the ability to work with others both collaboratively and in leadership roles.

PSOE Learning Outcomes

1. The teacher candidate uses knowledge of curriculum, learner differences, and ongoing assessment data to plan for student access to same essential content.
2.
3. The teacher candidate utilizes a variety of strategies to differentiate instruction and provide an academically challenging environment for all students.

4. The teacher candidate uses systematic formal/informal assessment as an ongoing diagnostic activity to measure student growth and to guide, differentiate, and adjust instruction.

5. The teacher candidate displays a professional commitment to the teaching philosophy of differentiated instruction to support students' diverse learning needs and to maximize learning.

GA TEACHER ETHICS LINK:

https://www.gapsc.com/rules/current/ethics/505-6-.01.pdf

Teacher Assessment on Performance Standards (TAPS)
TAPS Standard 1: Professional Knowledge The teacher demonstrates an understanding of the curriculum, subject content, pedagogical knowledge, and the needs of students by providing relevant learning experiences.
TAPS Standard 2: Instructional Planning The teacher plans using state and local school district curricula and standards, effective strategies, resources, and data to address the differentiated needs of all students.
TAPS Standard 3: Instructional Strategies The teacher promotes student learning by using research-based instructional strategies relevant to the content to engage students in active learning and to facilitate the students' acquisition of key knowledge and skills.
TAPS Standard 4: Differentiated Instruction The teacher challenges and supports each student's learning by providing appropriate content and developing skills which address individual learning differences.
TAPS Standard 5: Assessment Strategies The teacher systematically chooses a variety of diagnostic, formative, and summative assessment strategies and instruments that are valid and appropriate for the content and student population.
TAPS Standard 6: Assessment Uses The teacher systematically gathers, analyzes, and uses relevant data to measure student progress, to inform instructional content and delivery methods, and to provide timely and constructive feedback to both students and parents.
TAPS Standard 7: Positive Learning Environment The teacher provides a well-managed, safe, and orderly environment that is conducive to learning and encourages respect for all.
TAPS Standard 8: Academically Challenging Environment The teacher creates a student-centered, academic environment in which teaching, and learning occur at high levels and students are self-directed learners.

TAPS Standard 9: Professionalism
The teacher maintains a commitment to professional ethics and the school's mission, participates in professional growth opportunities to support student learning, and contributes to the profession.
TAPS Standard 10: Communication
The teacher communicates effectively with students, parents or guardians, district and school personnel, and other stakeholders in ways that enhance student learning.

Campus Security

Reinhardt Campus Security provides assistance to students in the event of an emergency. Campus Security can be reached at (770) 720- 5911

"Reinhardt University is committed to providing a safe environment for its students, visitors, faculty and staff. Long-established policies, approved by Reinhardt's Board of Trustees, prohibit possession of firearms on property owned by the University."

Important Contact Information

Campus Nurse within the Student Health Center
        nurse@reinhardt.edu, 770-720-5542 or www.reinhardt.edu/nurse.
Public Safety
        Non-Emergency Phone: 770.720.5789
        Emergency Phone: 770.720.5911
        publicsafety@reinhardt.edu
Dean of Students
        deanofstudents@reinhardt.edu, 770-720-5540
Office of the VPAA
        vpaa@reinhardt.edu, 770-720-9102

As a Reinhardt student, you have unlimited access to doctors, therapists, and on-demand crisis counseling through the Virtual Care Group's telehealth options. This service is in addition to other healthcare and counseling services available through the Student Health Center. In July, you will receive an e-mail from the Virtual Care Virtual Care Group (VCG) Group notifying you that you have full access to their telehealth platform. You will use that email or go the through the VCG app to find out more about the Virtual Care Group to activate your account www.thevirtualcaregroup.com/reinhardt Once activated, you can get the care you need anytime, from anywhere, which includes unlimited medical visits with board-certified physicians, 50-minute behavioral visits, life coaching, and on-demand crisis counseling.

Attendance Policy

Attendance is required. If an excused absence occurs (i.e., student athletes' participation in RU sporting event, participation in RU School of Performing Arts recital or concert, death in immediate family, or hospital/doctor visit), documentation for absence is required. For any unexcused absence, 5% of the final grade will be deducted.

Eagle360

Reinhardt utilizes and early alert program in which the professors can enter progress reports and academic/behavioral assistance can be utilized. This early alert program is designed to allow each student to be successful in completing their post-secondary education. It is the mission of Reinhardt University to **educate the whole person with challenge and care.**

Field Experience

     Number of hours: 250 hours

     Expectations: 15 to 20 hours per week in assigned school

     Reflection: Assigned Journal topics

Course Requirements/Assignments

1. **Article Reviews (4 research articles during the semester that target science instruction – articles will be provided and format will vary)**	60 points (15 points each)
2. **National Standard and State K-12 Standards Analysis and Reflection for the practicum grade level.**	25 points
3. **Activities of Science Assignments: Plan a Science Hands On Minds On**	30 points (10 points each)

Activity for Class, Plan a Science Based Field Trip, and Science Technology Integration Activity	
4. Science Data Lesson Plan	30 points
5. Lesson Implementation/Impact	25 Points
6. Completion of Field Experience	Required
7. Class Discussions and Journal Responses as assigned	30 Points
TOTAL POINTS	200 Points

Evaluation and Grading

A	200-180
B	179-160
C	159-140
D	139-120
F	119↓

Projected Course Outline - Professor reserves right to amend assignments

ALL Lesson are posted in MODULES in CANVAS

Date	Course Topic	Course Activity	Out of Class Assignment
8/15	What is a Scientist? What is Data? Engineering Design Websites	*Discussion submission *Chewable Changes	*Student Info submission of syllabus review *Reflection
8/22	What does a Science Classroom Look like in Schools of today? Lesson Plans Learning to THINK	Notes/Discussion	Article Review

	The Science Classroom Learning Styles and Science		
8/29	The Science Teacher and Science Learner		
9/5	Science Technology		Websites of Science Article two
9/12	Goal of a Teacher with a Science Learner	GADOE Map Activity	Standards Analysis
9/19	Science Programs from Infinity to Beyond	Future of Science with AI	TBD
9/26	Life Science	Human Body Corp	
10/3	Earth and Space		Reflection
10/10	Weather Questioning Strategies	Hands On Activities	Hands On Assignment
10/17	Light and Sound	Hands On Activities Edible Science	Article Review
10/24	Machines/Magnets/Electricity	Hands On Activities	
10/31	Field Trip	TBA	Field Trip Assignment
11/7	Science and the Community	Science Everyday	
11/14	Science Lesson to Share		Lesson Plan Sharing
11/21	Science … Now What		Reflection

References/Bibliography

Amaral, O.M., Garrison, L., & Klentschy, M. (2002). Helping English learners increase achievement
through inquiry-based science instruction. Bilingual Research Journal, 26, 213–239.
American Association for the Advancement of Science. (1989). Science for all Americans. New York:
Oxford University Press.
American Association for the Advancement of Science. (1993). Benchmarks for science literacy. New

York: Oxford University Press.

Calabrese Bar ton, A. (1998). Teaching science with homeless children: Pedagogy, representation, and
identity. Journal of Research in Science Teaching, 35, 379–394.

Campbell, J. R., Hombo, C. M., & Mazzeo, J. (2000). NAEP 1999 trends in academic progress: Three
decades of student performance (NCES 2000–469). Washington, DC: U.S. Department of Education,
National Center for Education Statistics.

Hoover, J., & Patton, J. (2005). Differentiating Curriculum and Instruction for English-Language
Learners With Special Needs. Intervention in School & Clinic, 40(4), 231-235.

Intemann, K. (2009). Why Diversity Matters: Understanding and Applying the Diversity Component of
the National Science Foundation's Broader Impacts Criterion. Social Epistemology, 23(3/4), 249-266.

Kahle, J. B.,Meece, J.,& Scantlebury, K. (2000). Urban African-American middle school science students:
Does standards-based teaching make a difference? Journal of Research in Science Teaching, 37, 1019–
1041.

Lee, O. (2002). Science inquiry for elementary students from diver se backgrounds. In W. G. Secada (Ed.),
Review of research in education (Vol. 26, pp. 23–69). Washington, DC: American Educational Research
Association.

Lee,O. (2003). Equity for culturally and linguistically diverse students in science education: A research
agenda. Teachers College Record, 105, 465–489.

Lee, O. (2004). Teacher change in beliefs and practices in science and literacy instruction with English
language learner s. Journal of Research in Science Teaching, 41, 65–93.

Academic Assistance

Center for Student Success

The **Center for Student Success** located in the large classroom in the library, is a free tutoring service available to all students. For appointments, scan the QR code.

Americans with Disabilities Act

The **Americans with Disabilities Act (ADA)** is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides reasonable accommodation for their disabilities. If you have a documented disability requiring accommodation, please contact the Academic Support Office (ASO).

Reinhardt University is committed to providing reasonable accommodations for all persons with disabilities. Therefore, if you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with the Academic Support Office (ASO). ASO is located in the basement of Lawson Building. Phone is 770-720-5567. To receive academic accommodations for this class, please obtain the proper ASO letters/forms.

Price School of Education (PSOE) Policies for Professionalism

GaPSC TEACHER ETHICS LINK

The Price School of Education (PSOE) of Reinhardt University is dedicated to creating effective teachers who demonstrate quality teaching and a strong sense of professionalism founded in a solid commitment to the teaching philosophy of differentiated instruction and the PSOE Policies for Professionalism. A critical part of the developing professionalism of all education candidates is attained through establishing a knowledge base of ethical standards as identified in the Code of Ethics for Educators prescribed by the Professional Standards Commission (PSC), the agency responsible for certification, preparation, and conduct of personnel employed in the public schools of the State of Georgia. An education candidate is defined as any student taking classes offered in the program of study from the Price School of Education.

The following PSOE Policies for Professionalism for Education candidates in all teacher preparation programs address Academic Integrity, Attendance/Punctuality, Level of Engagement, Completion of Assignments, Professional Disposition, and Support of a Professional Learning Community:

1. **ACADEMIC INTEGRITY**

   The following are recognized as unacceptable forms of academic behavior:
   1. Plagiarizing: that is, presenting words or ideas not your own as if they were your own. Three or more words taken directly from another source must be enclosed in quotation marks and documented.
   2. Submitting a paper or lesson plan written by another candidate or another person as if it were your own.
   3. Submitting a paper or lesson plan written by you for another course or occasion without the explicit knowledge and consent of the instructor.
   4. Fabricating evidence or statistics that supposedly represent your original research.
   5. Cheating of any sort on tests, papers, projects, reports, field experience documentation, etc.
   6. Unauthorized use of the password or account number of another candidate or a faculty member to gain access to computers, data files, or computer output.
   7. Aiding or otherwise enabling another candidate to engage in any form of academic dishonesty.
   8. Failure to report suspected or obvious incidences of academic dishonesty to the course instructor.
   9. Any other behaviors that violate the spirit of ethical and professional behavior.

   Penalties for Academic Dishonesty. In the event of academic dishonesty, according to the definition stated above and whatever additional definition an instructor has published in the class syllabus, the instructor may do one of the following, according to his or her assessment of the severity of the infraction and any extenuating circumstances:
   1. Assign a grade of *F* or *0* on the paper, project, or examination, but allow resubmission, resulting in a maximum combined grade of *C*.
   2. Assign a grade of *F* or *0* on the paper, project, or examination without the opportunity for resubmission.
   3. Assign a grade of *F* in the course.

   All education candidates must understand that academic dishonesty in any form may have consequences beyond the boundaries of one class and may result in denial of admission to or dismissal from the PSOE.

In all cases, the instructor will forward evidence of dishonesty to the Dean of the Price School of Education and the Office of the Vice-President and Dean for Academic Affairs.

As education candidates begin to visit PK-12 schools in the community to fulfill course and program requirements, it is necessary to extend the policies of Academic Integrity to field experiences and clinical practice. Any dishonesty connected with field experience or clinical practice will result in failing the field experience component of the course, failing the course, or denial of admission to the Price School of Education. If the education candidate has already been admitted to the PSOE, dismissal from the program may be the consequence. Any unprofessional behavior in field experience will be reported to the Director of Field Experience and the PSOE Dean.

2. **CLASSROOM AND FIELD EXPERIENCE ATTENDANCE/PUNCTUALITY**

During each semester, education candidates will be expected to attend all classes and scheduled seminars and to be prompt. For each class absence and/or tardiness, points may be deducted from the course grade. Excessive absenteeism and tardiness may result in a lower grade or being dropped from the class. If an absence is unavoidable, the candidate should contact the instructor as soon as possible via telephone, voicemail, and/or e-mail. Each candidate is responsible for all material and information discussed and assigned in class, and he/she must decide with a fellow class member to take notes, collect any handouts, and communicate any new or updated course information in the event of an absence.

It is expected that all education candidates will clearly display professional behaviors as course requirements for field experience are met. These professional behaviors include the following: maintaining consistent attendance and punctuality for scheduled field experiences; demonstrating enjoyment of learning and enthusiasm toward working with children; displaying courtesy and civility when communicating and interacting with local school personnel; and exhibiting appropriate dress and appearance for all field experiences.

A. Candidates must initially contact their assigned teachers within 5 days after they have been notified via e-mail regarding field experience placement.
B. If an absence is unavoidable, candidates should immediately contact the collaborating teacher and supervisor via telephone, voicemail, and/or e-mail. It is also expected that any days missed during field experience or clinical practice will be made up by the candidate and clearly documented on the Time Sheet and Verification of Field Experience with Candidate Professionalism Assessment Form submitted by the collaborating teacher at the end of the semester.
C. Collaborating teachers must mail in the Time Sheet and Verification of Field Experience with Candidate Professionalism Assessment Form directly to the PSOE Director of Field Experience and should never be delivered directly by the candidate.
D. All field experience and clinical practice placements must be arranged through the Field Experience Office.

3. LEVEL OF CLASSROOM / FIELD EXPERIENCE ENGAGEMENT

The PSOE policy for level of university classroom engagement assumes that all education candidates will proactively contribute to class discussion by offering ideas and asking questions during class time.

For field experience, it is expected that all education candidates will take the initiative to be actively involved from the beginning of the field experience in a variety of school-based activities directed by course instructors, Clinical Faculty, and/or collaborating teachers. Activities may include, but are not limited to, structured observations, teacher interviews, tutoring or assisting individual students, working with both small and large groups of students, assisting the collaborating teacher in class preparation and implementation of instruction, and/or participation in school/agency meetings as directed by the collaborating teacher/supervisor.

4. COMPLETION OF UNIVERSITY CLASSROOM ASSIGNMENTS

It is expected that education candidates will demonstrate their professionalism through the submission of course assignments when the assignments are due. Except in extenuating circumstances, course assignments will not be accepted by any instructor after the due date unless written documented arrangements have been made between the candidate and instructor prior to the due date. If no prior arrangements have been made, it is expected that the candidate will make provisions to submit the assignment on the due date. Additional written documentation must also be provided by the candidate if the reason for the delayed assignment is related to personal illness, illness of an immediate family member, religious holiday, death of a family member, or the request of the collaborating teacher.

5. PROFESSIONAL DISPOSITION

It is expected that education candidates will always display a professional disposition in the University classroom, as well as during field experience and clinical practice in local classrooms. The consistent demonstration of a professional teaching disposition is critical to a candidate's admission to the next stage of his or her preparation program, to the successful completion of the candidate teaching experience during the final semester, and to recommendation for future employment.

The mission of all teacher preparation programs at Reinhardt University is to "produce reflective, problem-solving teachers who respond to the diversity of student needs

through differentiated instruction driven by ongoing assessment and adjustments within a nurturing environment."

Evidence of a developing professional disposition includes the following intelligent behaviors:

A. Learning from experience and showing improvement over time;
B. Assuming responsibility for decisions and their consequences;
C. Managing interpersonal relationships in a mature and professional manner;
D. Listening with empathy and understanding to perceive another's point of view and emotions;
E. Persevering in tasks to completion, remaining focused, and looking for ways to reach a goal when having difficulty;
F. Thinking before acting, and remaining calm, thoughtful, and deliberate;
G. Finding humor in unusual, unexplained, inconsistent, and unexpected situations;
H. Demonstrating enjoyment of thinking and learning and responding with awe and enthusiasm;
I. Thinking and working interdependently to learn from others in reciprocal situations;
J. Practicing professional written and spoken communication that is accurate, clear, concise, and grammatically correct;
K. Reflecting on and assessing one own performance and effectiveness for self-improvement and for making future knowledgeable decisions; and
L. Displaying characteristics of a lifelong professional learner to deepen one's ability to problem-solve, to make informed decisions, and to enhance employability (e.g., apply past knowledge to new situations, display inquisitiveness, be willing to try new things and explore new and original ideas, be self-directed, risk mistakes, and remain open to continuous learning).

6.   **SUPPORT OF A PROFESSIONAL LEARNING COMMUNITY**

It is a strong belief of the PSOE that behaviors continuously displayed within the University classroom will often reflect how candidates will interact with students, parents, administrators, teaching colleagues, and other personnel within their present field experience and clinical practice placements in their future local schools and classrooms. Therefore, it is expected that candidates will support a professional learning community within the University classroom to maintain a nurturing learning environment of care and challenge for all.

Evidence of supporting a professional learning community includes the following consistent behaviors:
A. Completing course assignments and other assigned field experience or clinical practice requirements in an organized, accurate, and timely manner.
B. Being prepared for each class session by bringing all materials to class and completing all readings, assignments, and/or presentation materials prior to class time;
C. Demonstrating appreciation of and compassion for individual differences and backgrounds of all class members;

D. Developing positive, accepting, collaborative, and inclusive relationships with all members of the class;
E. Offering assistance and encouragement to all class members;
F. Listening openly and dialoguing positively about different perspectives expressed by other class members and faculty members;
G. Refraining from using any electronic devices, such as cell phones or laptop/tablet computers, for personal communication/social media purposes during class time;
H. Refraining from engaging in personal conversations or other distracting behaviors while an instructor, visiting speaker, class member, or group is presenting to the class;
I. Choosing wisely what will be discussed in public, private, or online (e.g., Facebook) with other class members, and keeping information to oneself that concerns academic and disciplinary records, personal confidences, health and medical issues, family status and/or income, assessment/testing results, or any other personal or private affairs of any class member or instructor; and
J. Using appropriate, respectful, professional language at all times.

Note: Education candidates should review each PSOE course syllabus for course-specific penalties related to professionalism expectations. Failure to meet any of the above PSOE Policies for Professionalism may result in denial of PSOE admission or dismissal from the Price School of Education.

The contents of this form were addressed in class, and I understand the PSOE policies and conditions for professionalism listed above.

_____   _____ _____

              Candidate Signature   Date   PSOE Course

Attachments/Resources