



UNIVERSITY OF TEXAS AT EL PASO
College of Education- Department of Teacher Education

Course Title: SCED4368-CRN24524: Teaching Science in Secondary School MSED4311-CRN23705: Teaching Science in Middle School	
Semester: 2025 Spring Credits: 3 Day/Time: This course is 100% online. We will not meet for this class online or in person, except the first class meeting on Jan 21 (Tuesday) @ 1:00 pm-2:00 pm on Zoom at the following link: https://utep-edu.zoom.us/j/6178265571	Instructor Name: Pei-Ling Hsu Email: phsu3@utep.edu Website: http://peilinghsu.utep.edu Office hours: Mondays 1:00pm-4:00pm. Please email me at phsu3@utep.edu to set up a virtual zoom meeting.
Please see syllabus calendar for more details.	

Course Description:

This course is designed to help you examine critically the perspectives, philosophies, materials, and strategies for effective learning in middle and secondary school science classrooms. The ultimate goal is to understand how to design a learning climate where every student is held to high expectations and achieves maximum learning. In particular, the participants will develop a better understanding of effective science teaching and learning in schools in the unique border schools so our community will be equipped to make informed decisions about our world, to pursue science fields, to critically examine the power of science in our society, and to participate in improving our society.

Course Format Information: All coursework and resources will be in **Blackboard** and will run on a Monday to Sunday schedule. This course is 100% online. We will not meet for this class online or in person, except the first class meeting on Jan 21 (Tuesday) @ 1:00 pm-2:00 pm on Zoom at the following link: <https://utep-edu.zoom.us/j/6178265571>

You will work on and submit assignments according to the syllabus calendar on specific days/times. The standard recommendation across the board by American universities is to plan for approximately three hours of study time for every one credit hour taken. Therefore, for this course, you can expect each week to spend 9-12 hours per week devoted to this course. Please read the syllabus and information in the course site VERY carefully, understand what you need to do and when you need to do it, and then plan course work time in your week accordingly. If at any time you do not understand what to do or when to do it, you should contact Dr. Pei-Ling Hsu (phsu3@utep.edu).

UTEP EDGE Alignments:

This course will help students gain experience of (1) learning communities, (2) creative activity, and (3) community engagement, and help students enhance skills of (1) problem-solving, (2) communication, and (3) critical thinking.

Student Learning Outcomes:

TEXAS Teaching Standards [SBEC] Students will be able to:	Assessment and Evidence of SBEC Learning Outcomes
Instructional Planning and Delivery	
Plan instruction that is developmentally appropriate, is standards driven, and motivates students to learn	-Discussion Board and Reflection -Lesson Plan Resource Exploration
Use a range of instructional strategies, appropriate to the content area, to make subject matter accessible to all students	-Discussion Board and Reflection -Lesson Plan Resource Exploration
Differentiate instruction, aligning methods and techniques to diverse student needs, including acceleration, remediation, and implementation of individual education	-Discussion Board and Reflection
Ensure that the learning environment features a high degree of student engagement by facilitating discussion and student-centered activities as well as leading direct instruction	-Discussion Board and Reflection -Science Trade Book Exploration
Set high expectations and create challenging learning experiences for students, encouraging them to apply disciplinary and cross-disciplinary knowledge to real-world problems	-Discussion Board and Reflection -Science Teaching Philosophy
Monitor and assess students' progress to ensure that their lessons meet students' needs	-Discussion Board and Reflection -Simulation Resource Exploration
Knowledge of Students and Student Learning	
Understand how learning occurs and how learners develop, construct meaning, and acquire knowledge and skills.	-Discussion Board and Reflection -Science Teaching Philosophy
Content Knowledge and Expertise	
Organize curriculum to facilitate student understanding of the subject matter	-Discussion Board and Reflection
Understand, actively anticipate, and adapt instruction to address common misunderstandings and preconceptions	-Discussion Board and Reflection
Promote literacy and the academic language within the discipline and make discipline-specific language accessible to all learners	-Discussion Board and Reflection
Data Driven Practices	
Design instruction, change strategies, and differentiate their teaching practices to improve student learning based on assessment outcomes	-Discussion Board and Reflection
Professional Practices and Responsibilities	
Adhere to the educators' code of ethics in §247.2 of this title (relating to Code of Ethics and Standard Practices for Texas	-Science Teaching Philosophy

Learning Modules:

This course is designed using a modular format—that is, each week is “packaged” as a single module so that all the materials, lecture notes, submission areas, discussion posts are in one area for a given week.

Required Text & Readings

Action Science: Relevant Teaching and Active Learning, (2014). Robertson, W. 1st Edition
ISBN 9781452256566

<https://www.amazon.com/Action-Science-Relevant-Teaching-Learning/dp/145225656X>

<https://www.barnesandnoble.com/w/action-science-william-h-robertson/1135308470>

Additional Required Readings/Resources

Texas Essential Knowledge and Skills (TEKS) <https://tea.texas.gov/curriculum/teks/>

T-TESS <https://www.teachfortexas.org/Views/Teachers>

*Additional handouts will be made available in classes. These documents play key roles in guiding your assignments and projects. Changes may be made in classes. Please make sure you read these documents in time.

Technology Requirements:

Course content is delivered partly via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have access to a computer/laptop. You will need to download or update the following software: Microsoft Office, Adobe Acrobat Reader, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course. If you do not have a word-processing software, you can download Word and other Microsoft Office programs (including Excel, PowerPoint, Outlook and more) for free via UTEP’s Microsoft Office Portal.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP Help Desk (Library Room 300, 915-747-4357, helpdesk@utep.edu) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

Netiquette:

According to [Handbook of Operating Procedures](#), no person shall make, distribute, or display on the campus any statement that constitutes verbal harassment of any other person:

“2.2.4.1.2 Verbal harassment may consist of threats, insults, epithets, ridicule, personal attacks, or the categories of harassing sexual speech set forth in Section VI: Equal Opportunity of this Handbook and is often based on the victim's appearance, personal characteristics, or group membership, including but not limited to race, color, religion, national origin, gender, age, disability, citizenship, veteran status, sexual orientation, ideology, political views, or political affiliation.”

As we know, sometimes communication online can be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space.

Standards of academic integrity:

Students are expected to uphold the highest standards of academic integrity. Any form of scholastic dishonesty is an affront to the pursuit of knowledge and jeopardizes the quality of the degree awarded to all graduates of UTEP. Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but is not limited to: cheating, plagiarism, collusion [making plans to cheat with another], the submission for credit of any work or materials that are not attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. Proven violations of the detailed regulations, as printed in the Handbook of Operating Procedures (HOP) and available in the Office of the Dean of Students, may result in sanctions ranging from disciplinary probation, to failing grades on the work in question, to failing grades in the course, to suspension or dismissal among others.

Students with Disabilities statement:

If you have or believe you have a disability; you may wish to self-identify. You can do so by providing documentation to the Center for Accommodations and Support Services (CASS) located in Union E Room 106. Students who have been designated as having a disability must reactivate their standing with CASS on a yearly basis. Failure to report to this office will place a student on the inactive list and nullify benefits received. If you have a condition which may affect your ability to exit safely from the premises in an emergency or which may cause an emergency during class, you are encouraged to discuss this in confidence with the instructor and/or the director of CASS. You may call 919-747-5148 or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at <https://www.utep.edu/student-affairs/cass/>.

Student Conduct and Discipline:

All students are expected and required to obey the law and to comply with Regent, Rules, and Regulations (<http://www.utsystem.edu/bor/rules>) with system and University rules, with directives issued by an administrative official in the course of his or her authorized duties and to observe the standards of conduct appropriate for the university.

Equal Opportunity:

All students regardless of gender, age, class, race, religion, physical disability, sexual orientation, etc., shall have equal opportunity without harassment in this course. Any problems with or questions related to this can be discussed confidentially with the instructor.

Excused Absences and Course Drop Policy:

According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of “W” before the course drop deadline and with a grade of “F” after the course drop deadline.” For this course, **missing two weeks of online discussions or failure to turn in three consecutive assignments will result in your being dropped from the course.** I will email you prior to dropping you from the course. If I do not receive a response within 2 days, I will assume you are not interested in continuing in the course and will submit a course drop at that time.

Important Notes for Assignments:

If Blackboard is down and you cannot submit your assignments, you must email me (phsu3@utep.edu) immediately with an attachment of your work. Include your name and course name and number. (Ex: SCED 3312, Jorge Perez) When you do this, I will know that you have completed the work in a timely manner and it will be accepted. I will then check with the Technology staff at UTEP to determine when Blackboard was out. If you email me indicating that you did not post your coursework because Blackboard is down, but you do not send me your work as an attachment in the message, you will not receive credit for your work.

Your work is expected to be your own. Everything you turn in for this course must be your own work. Any student caught engaging in instances of cheating, plagiarism or any other form of academic misconduct will be referred to the Dean of Students Office for disciplinary action. Students may be suspended or expelled from UTEP for such actions. It’s serious! Don’t do it.

If at any time, you have difficulty understanding my expectations, the course material or completing course work for any reason—**BE PROACTIVE!!!** I am here for you. I strongly encourage you to reach out to me as soon as possible (do not wait until the day before something is due or the end of the semester) and we will work together to make this class a success for you!

Evaluation & Coursework Requirements of Students:

All assignments should be submitted to Blackboard and all due dates are listed in Table 1.

1. Discussion Board #1 – Self-Introduction (1 point) and Two Responses (1 point)

For Discussion Board (DB)- Self-Introduction, please provide an introduction (minimum 200 words) about yourself. This can be done by using words, graphics, personal photos, or recording mini-videos and sharing them with the class. The “first line” for this DB post should indicate student name (e.g., “Pei-Ling Hsu – Self Introduction”). For this DB, please answer the 3 questions: (1) What is your academic/professional background? (2) What are some strategies that work for you to deal with possible stress for coursework? (3) What are

two truths and one lie about yourself? Each student then should respond to two classmates' self-introduction with a minimum of 100 words for each classmate. The rubric for this assignment can be found in Appendix 1.

2. Syllabus Test (2 points)

Students will review the syllabus and be familiar with all course requirement and rules. Each student will do a multiple choice question test in Blackboard.

3. Discussion Boards Posts #2-#7 (36 points, 6 points for each post)

For each Discussion Board Post (DBP), each student should post a minimum of 500 words on corresponding topics specified in Blackboard. Each of the post should include (1) summary of the reading/video packet, (2) personal connection to the reading/video packet, (3) concerns and questions for the reading/video packet. The "first line" for each DB post should indicate student name and DB number: "Pei-Ling Hsu – DB#2," "Pei-Ling Hsu – DB#3," etc. The rubric for this assignment can be found in Appendix 2.

4. Discussion Boards Responses #2-#7 (12 points, 1 point for each response)

For each Discussion Board Response (DBR), each student should respond to at least two other classmates' DBP (each week choose different classmates). Each response should: (1) identify merits, (2) suggest ideas for improvements, and (3) end the response with a question. The minimum of each response is 100 words. The rubric for this assignment can be found in Appendix 3.

5. Science Teaching Simulation 1 & 2 (8 points, 4 points for each exploration)

Each student will examine two "simulations" at the website of "PhET-Interactive Simulations" (<https://phet.colorado.edu/>) and identify and learn from high quality resources. Students are provided with "Template 1-Simulation Resource Exploration 1 (Minimum: 500 words)" and "Template 2-Simulation Resource Exploration 2 (Minimum: 500 words)" to fill out, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in teaching. This assignment should be submitted to the corresponding assignment section through the BLACKBOARD system in time. The rubric for this assignment can be found in Appendix 4.

6. Science Teaching Trade Book 1 & 2 (8 points, 4 points for each exploration)

Each student will identify and examine two science trade books. Students are provided with "Template 3-Science Trade Book (Minimum: 500 words)" and "Template 4-Science Trade Book (Minimum: 500 words)" to fill out, including three components: (1) Science Trade Book introduction, (2) Merits of this science trade book, and (3) Possible ways to use this science trade book. This assignment should be submitted to the corresponding assignment section through the BLACKBOARD system in time. The rubric for this assignment can be found in Appendix 5. Students may find some examples of the science trade books here: <https://www.nsta.org/outstanding-science-trade-books-students-k-12>

7. Science Teaching Lesson Plan 1 & 2 (8 points, 4 points for each exploration)

Each student will examine two “lesson plans” at the website of National Science Teaching Association – Daily Dos Lesson Plans (<https://www.nsta.org/resources/daily-do>) and learn from high quality resources. Students are provided with “Template 5-Lesson Plan Resource Exploration 1 (Minimum: 500 words)” and “Template 6-Lesson Plan Resource Exploration 2 (Minimum: 500 words)” to fill out, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in teaching. This assignment should be submitted to the corresponding assignment section through the BLACKBOARD system in time. The rubric for this assignment can be found in Appendix 6.

8. AI Resource Exploration 1-6 (18 points, 3 points for each exploration)

Each student will identify 6 AI resource resources (i.e., AI Resource Explorations 1, 2, 3, 4, 5, & 6) in the website of “Magic School AI: <https://www.magicschool.ai/>”. Students may find relevant YouTube tutorial videos here: <https://www.youtube.com/@magicschoolai>. Students are provided with “Templates 7, 8, 9, 10, 11, & 12-AI Resource Explorations 1, 2, 3, 4, 5, & 6 (Minimum: 300 words each)” to fill out, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in teaching. This assignment should be submitted to the corresponding assignment section through the BLACKBOARD system in time. The rubric for this assignment can be found in Appendix 7.

9. Science Teaching Philosophy (6 points)

Students will reflect on their science learning experience and teaching philosophy. Students are provided with “Template 13-Science Teaching Philosophy (Minimum: 500 words)” to fill out, including three components: (1) Autobiography as a Science Learner, (2) Science Teaching Philosophy Statement, and (3) My Science Teaching Philosophy Picture. This assignment should be submitted to the corresponding assignment section through the BLACKBOARD system in time. The rubric for this assignment can be found in Appendix 8.

*Bonus point (1 point): At the end of the semester, students will receive a UTEP email inviting students to submit a course evaluation. Once students complete the evaluation, students will receive a completion confirmation message. To encourage students to complete the course evaluation for this course, students may receive a bonus point by submitting their course evaluation “completion confirmation screenshots” (“NOT” the evaluation results) to show that they complete their course evaluation.

Course Requirements:

1. All assignments should be submitted through the Blackboard system and use WORD files or Powerpoint files. File names should start with “your name” and end with “the assignment name”. There should be no space in between. Taking the name of “Isaac Newton” for example.
 - 1) IsaacNewton-ScienceTradeBookResourceExploration1.docx
 - 2) IsaacNewton-ScienceTradeBookResourceExploration2.docx
 - 3) IsaacNewton-ScienceSimulationResourceExploration1.docx
 - 4) IsaacNewton-ScienceSimulationResourceExploration2.docx
 - 5) IsaacNewton-ScienceLessonPlanResourceExploration1.docx
 - 6) IsaacNewton-ScienceLessonPlanResourceExploration2.docx

- 7) IsaacNewton-AIRResourceExploration1.docx
- 8) IsaacNewton-AIRResourceExploration2.docx
- 9) IsaacNewton-AIRResourceExploration3.docx
- 10) IsaacNewton-AIRResourceExploration4.docx
- 11) IsaacNewton-AIRResourceExploration5.docx
- 12) IsaacNewton-AIRResourceExploration6.docx
- 13) IsaacNewton-ScienceTeachingPhilosophyReflection.docx

2. Due dates are specified in Table 1 and due time is 11:59PM (midnight) for ALL electronic submissions.

3. Delayed submissions of any assignments will cause grade reductions. One delay day causes 10% reduction of a deserved grade, two delay days causes 20% of a deserved grade, and so on.

4. Each electronic file of assignments should not exceed 10 MB.
5. Students are encouraged to take notes during the course for creating your own learning resources.

Grade for STEM 6319:

A letter grade will be assigned based on students' performance: A (90–100 points), B (80–89 points), C (70–79 points), D (60–69 points), or F (<60 points).

Course Resources:

- Concept map tool: <https://bubbl.us/>
- Learning Science Through Inquiry (Annenberg Learner): <http://www.learner.org/workshops/inquiry/about/overview.html>
- Web-based Inquiry Science Environment: <https://wise.berkeley.edu/>
- National Science Education Standards (NSES): http://www.nap.edu/openbook.php?record_id=4962
- Texas Education Agency (TEA): <http://www.tea.state.tx.us/index.aspx>
 - Texas Essential Knowledge and Skills (TEKS): <http://www.tea.state.tx.us/index2.aspx?id=6148>
 - Texas Assessment of Knowledge and Skills (TAKS): http://www.tea.state.tx.us/index3.aspx?id=3839&menu_id=793
 - State Board for Educator Certification (SBEC): <http://www.tea.state.tx.us/index2.aspx?id=2147489433>
 - Texas Examinations of Educator Standards (TExES): <http://www.texas.ets.org/texas/>
 - TExES Preparation Manuals: <http://www.texas.ets.org/texas/prepMaterials/>
 - Pedagogy and Professional Responsibilities (PPR) Standards: http://www.tea.state.tx.us/index2.aspx?id=5938&menu_id=2147483671&menu_id2=794
 - English Language Proficiency (ELP) Standards: http://www.tea.state.tx.us/index2.aspx?id=5938&menu_id=2147483671&menu_id2=794
 - Texas Gateway: <https://www.texasgateway.org/>

UTEP Resources:

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.
- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Virtually everyone needs help with writing academic English. The UWC [Library Building, Rm.227; phone: 915.747.5112] provides online consultations to all UTEP students at no cost. They also have walk-in services. Check the website for more information: <http://uwc.utep.edu>
- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.
- UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources or visit https://www.utep.edu/advising/student_resources/student-success-resource-hub.html.



Class Schedule (Table 1)

Changes may be made during the classes. Students should follow the latest changes.

Week	Topics	Assignments and Due Dates
1 1/21-1/26	Syllabus & Introduction & Blackboard	Reflect on reading packet 1 DB#1-Post (Due: 1/24) & DB#1-Responses (Due: 1/26) Syllabus test (Due: 1/26)
2 1/27-2/2	TEKS & NGSS	Reflect on reading packet 2 DB#2-Post (Due: 1/31) & DB#2-Responses (Due: 2/2)
3 2/3-2/9	Concept Maps	Reflect on reading packet 3 DB#3-Post (Due: 2/7) & DB#3-Responses (Due: 2/9)
4 2/10-2/16	Science Inquiry	Reflect on reading packet 4 DB#4-Post (Due: 2/14) & DB#4-Responses (Due: 2/16)
5 2/17-2/23	5E Model	Reflect on reading packet 5 DB#5-Post (Due: 2/21) & DB#5-Responses (Due: 2/23)
6 2/24-3/2	Multiple Representations	Reflect on reading packet 6 DB#6-Post (Due: 2/28) & DB#6-Responses (Due: 3/2)
7 3/3-3/9	Science Trade Book – Part 1	Reflect on reading packet 7 DB#7-Post (Due: 3/7) & DB#7-Responses (Due: 3/9)
8 3/10-3/16	Science Trade Book– Part 2	Science Trade Book Resource Exploration 1 (Due: 3/16) Science Trade Book Resource Exploration 2 (Due: 3/16)
9 3/17-3/23	<i>Spring Break</i>	
10 3/24-3/30	STEM Simulations	Science Simulation Resource Exploration 1 (Due: 3/30) Science Simulation Resource Exploration 2 (Due: 3/30)
11 3/31-4/6	Science Lesson Plan	Science Lesson Plan Resource Exploration 1 (Due: 4/6) Science Lesson Plan Resource Exploration 2 (Due: 4/6)
12 4/7-4/13	AI Educational Resources –Part 1	AI Resource Exploration 1 (Due: 4/13) AI Resource Exploration 2 (Due: 4/13)
13 4/14-4/20	AI Educational Resources –Part 2	AI Resource Exploration 3 (Due: 4/20) AI Resource Exploration 4 (Due: 4/20)
14 4/21-4/27	AI Educational Resources –Part 3	AI Resource Exploration 5 (Due: 4/27) AI Resource Exploration 6 (Due: 4/27)
15 4/28-5/4	Science Teaching Philosophy	Science Teaching Philosophy Reflection (Due: 5/4)

Appendixes:

Appendix 1: Grading Rubric for “Discussion Board #1– Self Introduction and Two Responses”

67-100%	34-66%	0-33%
For Discussion Board- Self Introduction, each student should post a minimum of 200 words about yourself, addressing 3 questions specified in Blackboard. This can be done by using words, graphics, personal photos, or recording mini-videos and sharing them with the class. The title for this DB post should indicate student name (e.g., “Pei-Ling Hsu – Self Introduction”). Each student then should respond to two classmates’ self-introduction with a minimum of 100 words for each classmate.	Self-Introduction and two responses cover most of the requirements.	Self-Introduction and two responses cover only a few requirements.

Appendix 2: Grading Rubric for “Discussion Board Post #2-#7”

	Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
Follow instructions to cover required content	For each DBP, each student should post a minimum of 300 words on corresponding topics specified in Blackboard. Each of the post should include (1) summary of the reading packet, (2) personal connection to the reading packet, (3) concerns and questions for the reading packet. The titles for each DB post should indicate student name and DB number: “Pei-Ling Hsu – DB#2,” “Pei-Ling Hsu – DB#3,” etc.	DBP covers most of the requirements.	DBP covers only a few requirements.
Writing Skill	Sentences are clear and wording is unambiguous. Correct word choice, correct spelling, correct grammar, and APA 7 format. Writing style can still be conversational rather than formal. The writing does not have to be flawless, but it will be better than average writing.	Ordinary, good writing. Lapses are regular and patterned, but do not undermine the communication or the persuasiveness of the argument.	Grammar, spelling, and/or word choice errors are frequent enough that the sense of the message is lost or muddled.

Appendix 3: Grading Rubric for “Discussion Board Response #2-#7”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
For each Discussion Board Response (DBR), each student should respond to at least 2 other classmates’ DBP (each week choose different classmates). Each response should: (1) identify merits, (2) suggest ideas for improvements, and (3) end the response with a question. The minimum of each response is 100 words.	DBR covers most of the requirements.	DBR covers only a few requirements.

Appendix 4: Grading Rubric for “Science Teaching Simulation”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
For each resource exploration, each student should identify two high quality simulations and fill out the corresponding templates and requirements outlined in the templates, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in my future teaching. The minimum words for each resource exploration is 500 words.	The assignment covers most of the requirements.	The assignment covers only a few requirements.

Appendix 5: Grading Rubric for “Science Teaching Trade Book”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
For each resource exploration, each student should identify two high quality science trade books and fill out the corresponding templates and requirements outlined in the templates, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in my future teaching. The minimum words for each resource exploration is 500 words.	The assignment covers most of the requirements.	The assignment covers only a few requirements.

Appendix 6: Grading Rubric for “Science Teaching Lesson Plan”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
For each resource exploration, each student should identify two high quality lesson plans and fill out the corresponding templates and requirements outlined in the templates, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in	The assignment covers most of the requirements.	The assignment covers only a few requirements.

my future teaching. The minimum words for each resource exploration is 500 words.		
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Appendix 7: Grading Rubric for “AI Resource Exploration”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
For each resource exploration, each student should identify a high quality teaching resource and fill out the corresponding templates and requirements outlined in the templates, including three components: (1) Resource introduction, (2) Merits of this resource, and (3) Ways to use this resource in my future teaching. The minimum words for each resource exploration is 500 words.	The assignment covers most of the requirements.	The assignment covers only a few requirements.

Appendix 8: Grading Rubric for “Science Teaching Philosophy”

Excellent 67-100%	Satisfactory 34-66%	Underperform 0-33%
<ul style="list-style-type: none"> -Follow the instruction for completing this assignment (e.g., use the correct template, fulfill the three components outlined in the template, meet minimum words) -Philosophy statement addresses your beliefs about education, teaching and learning in formal and informal settings, interactions in the classroom (student-student and student-teacher) -The tone in your philosophy statement is reflective, clear, and personal (in your writing you use the ‘I’ instead of the third person) -Detailed and reflective descriptions of your experiences as a learner -Appropriate expression of concepts, varied and accurate vocabulary, no mechanical errors. 	The assignment covers most of the requirements.	The assignment covers only a few requirements.