

**OAKLAND UNIVERSITY  
SCHOOL OF EDUCATION AND HUMAN SERVICES  
TEACHER DEVELOPMENT AND EDUCATIONAL STUDIES**

**Fall 2018  
COURSE SYLLABUS**

**1. COURSE:** TD 5260: Teaching Elementary-Middle Level Science; 4 credit hours; Teacher Development and Educational Studies, Thursdays, 5:30-8:50 PM, Room 154 Pawley Hall

**2. CATALOGUE DESCRIPTION:**

Develops knowledge, skills and methods for teaching elementary and middle school science. Topics include planning effective instruction, using instructional models, creating a safe environment, integrating science across the curriculum, and using current instructional materials and assessment strategies. Includes a required field experience and additional science teaching experience.

**3. DROP DATE INFORMATION:**

The last day to drop this class with 100% tuition refund, as well as other important academic dates, can be found on the Office of the Registrar web page. For this term, the final drop date is September 18, 2018 (by 4 PM).

**4. COURSE EVALUATION:**

Course evaluations are available approximately 2 weeks prior to the final day of classes at <http://www.oakland.edu/evals>. The last day of class is the last day to complete the evaluation. Please take the time to complete your course evaluation as this information is important to instructors and to the overall teacher education program.

**5. AUTHORIZED INSTRUCTOR:**

INSTRUCTOR:	<b>Dr. Patricia “Patti” Bills</b>
OFFICE:	470G Pawley Hall (TDES)
OFFICE HOURS:	<b>By appointment</b>
PHONE:	(269) 569-1522 (cell)
	(248)370-4614 (office)
e-mail:	pbills@oakland.edu

**PREREQUISITES:** Prerequisite(s): admission to major and FE 680 and TD 520

**6. REQUIRED READINGS AND MATERIALS:**

All course material posted on Moodle for this course:

<https://moodle.oakland.edu/course/view.php?id=214940>

Achieve, Inc. (2013). *Next generation science standards*. Retrieved from [www.nextgenscience.org](http://www.nextgenscience.org)  
(Copies are available in class)

The Council of Chief State School Officers (CCSSO). (2013). *Interstate Assessment and Support Consortium (InTASC) model core teaching standards and learning progressions for teachers*. Retrieved

from

[https://www.ccsso.org/sites/default/files/2017-12/2013\\_INTASC\\_Learning\\_Progressions\\_for\\_Teachers.pdf](https://www.ccsso.org/sites/default/files/2017-12/2013_INTASC_Learning_Progressions_for_Teachers.pdf)

Michigan Department of Education. (2003). *Michigan Professional Educator's Code of Ethics*. Retrieved from [http://www.michigan.gov/documents/Code\\_of\\_Ethics\\_Layout\\_128009\\_7.pdf](http://www.michigan.gov/documents/Code_of_Ethics_Layout_128009_7.pdf) December 12, 2016.

Michigan Department of Education. (2008). *Certification standards for elementary teachers*. Retrieved from [https://www.michigan.gov/documents/mde/Elementary\\_Standards\\_JAN2008\\_231066\\_7.pdf](https://www.michigan.gov/documents/mde/Elementary_Standards_JAN2008_231066_7.pdf) April 4, 2016.

Michigan Department of Education. (November, 2015). Michigan K-12 Standards. Retrieved from [http://www.michigan.gov/documents/mde/K-12\\_Science\\_Performance\\_Expectations\\_v5\\_496901\\_7.pdf](http://www.michigan.gov/documents/mde/K-12_Science_Performance_Expectations_v5_496901_7.pdf), April 4, 2016.

University of Michigan (2016). TeachingWorks: High-leverage practices. Retrieved from <http://www.teachingworks.org/work-of-teaching/high-leverage-practices>

## **LEARNING GOALS FOR CANDIDATE PERFORMANCE:**

1. Candidates know, understand, and use fundamental concepts in the subject matter of science – including physical, life, and earth/space sciences – as well as concepts in science and technology, science in personal and social perspectives, the history and nature of science, the unifying concepts of science, and the inquiry processes scientists use in discovery of new knowledge to build a base for scientific and technological literacy. (MI Elementary Science Certification, 1.1)
2. Candidates know and demonstrate an understanding of how to teach so that students use inquiry to learn, conduct investigations, learn from a variety of sources, communicate, and use technology. (MI Elementary Science Certification, 1.2.1)
3. Candidates know and demonstrate an understanding of safe science practices (Council of State Science Supervisors) including the ethical and appropriate use and care for living organisms, scientific equipment, safe storage, use and disposal of chemicals. (MI Elementary Science Certification, 1.2.1.1)
4. Candidates reflect on scientific knowledge, which includes analytical thinking and reflective practices about claims for scientific merit, explanations by scientists as to what constitutes scientific knowledge, how science is related to other ways of knowing, how science and technology affect our society, how people of diverse cultures have contributed to and influenced developments in science and how scientifically literate students can describe the limitations of their own knowledge in general. (MI Elementary Science Certification, 1.2.2)
5. Candidates work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation. (InTASC 3)
6. The teacher understands how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues. (InTASC 5)
7. The teacher understands and uses multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher's and learner's decision making. (InTASC 6)

8. The teacher plans instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context. (InTASC 7)
9. The teacher understands and uses a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways. (InTASC 8)

***Note: The remaining Michigan Elementary Science Certification Standards as well as remaining InTASC standards are also integrated into the course. The standards listed above are the focus.***

#### **7. FIELD EXPERIENCE:**

Students will complete a field assignment as part of the course structure that involves teaching STEM (Science, Technology, Engineering, and Mathematics) – focusing on Science and Engineering, with literacy and mathematics integrations – to elementary or middle level students. This experience affords students the opportunity to implement science and/or STEM teaching strategies into various classroom settings. Students will have optional assignments that also involve teaching in field settings. Students may also attend professional science teaching conferences or professional development workshops as an integral component of the course.

#### **8. METHODS OF INSTRUCTION:**

This course requires the active participation of students. Methods of instruction include: online learning, interactive applications, lecture/demonstration; laboratory/field experiences; media presentations; review and analysis of teaching strategies/materials; library research; collaborative/cooperative learning.

#### **9. PERFORMANCE ASSESSMENT:**

This course seeks to provide practical, research-based information and practices to prepare you to be an excellent teacher of science. The topics and assignments are organized around key Next Generation Science Standards (NGSS), Michigan Elementary Science Certification, and InTASC standards. The course topics are listed on the syllabus, the calendar, as well as Moodle. Students are expected to check Moodle postings at least once prior to each session. Students will also be required to read posted assignments and videos posted on Moodle prior to each class session and come to class prepared to discuss the online modules (organized by week).

1. All formal assignments should be formatted in MS Word or a program that is readable by most computers. Any required attachments may be scanned/photographed and submitted electronically. However, be aware the photos taken by cell phones are often not readable. Complete web addresses should be included in APA formatted citations and references.
2. All assignments should relate to the teaching of *science/STEM* as opposed to general teaching methods.
3. Students are encouraged to arrange to meet with the instructor for help and feedback on assignments. As future teachers, it is essential that you demonstrate care with respect to the submission of written assignments. For each assignment, spelling, grammar, organization, and clarity of written work are evaluated. Errors such as these often result in lower assignment grades.

4. Assignments are to be uploaded to Moodle by the due date and time. Assignments turned in past the due date will be accepted for reduced credit. (A reduction of 10% of the total points possible will be taken for each week the assignment is late.)
5. All assignments are expected to be the individual student's original work and writing or reference appropriately (e.g., lessons from school or cooperating teacher not presented as your own work). Students are strongly encouraged to complete the online Plagiarism Tutorial found on the Kresge Library website. All allegations of academic misconduct will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of cheating in this course may receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Please refer to the 2018-2019 Oakland University Undergraduate Catalog to read the full *Academic Conduct Policy* listed under *Other Academic Policies* online at <http://catalog.oakland.edu/content.php?catoid=37&navoid=4612>
6. Science teaching requirement: In the field experience, the OU student must have a primary role in teaching science, rather than as a helper or observer. The intent of this requirement is to help build experience and confidence in the teaching of science. The science teaching experience should involve engaging students in hands-on opportunities rather than reading to students about science.
7. A special note is needed about the use of photos, videos or other media that may be collected during this course. You must read it carefully and it is your responsibility to understand the policies related to this area. It is your responsibility to seek permission to take photographs or to video your teaching. The instructor will have asked about this policy for group settings, however it is still best to speak directly with the teacher regarding policies and make sure that you are able to articulate the purpose, the use and limitations of use, and the protections you will enact. In most cases, the teacher will already be aware of the assignment in group settings and will have already sought permission from parents according to school district policy and will be able to indicate who is not allowed to be photographed or video-recorded. Also, be sure that you are familiar with, and able to use, technology applications that can be used to blur faces or otherwise de-identify individuals within photographs or video recordings. Professional staff members (e.g., Julie Chapie) in the Educational Resources Laboratory can provide support with this technology. Photographs or video are for your assignments or teaching portfolio and are not allowed to be published in any way (e.g., web, newsletter) for this course. All digital portfolios must be password protected.
8. Use appropriate video applications for sharing videos with the instructor via Moodle, email (Google Drive). For example, (.wmp) files will not open. These are Movie Maker projects and need to be saved as a viewable video file. You may need to compress larger files – if the file is over 200 M, then the instructor is not able to comment within the video and the video file takes an extraordinary time to download. Hand Brake is a campus supported compressing software and will be installed on all ERL computers very soon. It is already installed on all computers at the Student Technology Center (STC). Hand Brake is a multi-platform, free program which can be downloaded at: <https://handbrake.fr/> Professional staff members (e.g., Julie Chapie) in the Educational Resources Laboratory can provide support with this technology.

## **12. ASSIGNMENTS AND RUBRICS**

**PLEASE CHECK MOODLE FOR MORE INFORMATION ON EACH ASSIGNMENT**

## **Attendance and Participation** (25 points)

Credit is earned for full, positive, participation at each in-class period. Tardiness and partial attendance are disruptive to class and full participation points will not be earned when this occurs. Because of the nature of class activities, it will be impossible to make up missed class time. Check with your classmates to receive missed information. Points will not be earned for missed sessions, irrespective of the nature of the absence, and students need not provide a reason.

To encourage full participation, students may earn attendance points for each class session as follows:

2 points:	Full, positive participation (i.e., not texting, e-mailing, surfing) and arrive/depart as scheduled.
1.5 points:	Positive participation but late arrival or early departure.
0.5 point:	Participation limited and/or significant late arrival early departure.
0 point:	Session not attended

## **Text Quizzes and Video Responses** (5 points possible for each, 40 points total)

Homework is due each week before the start of each class session as listed in Moodle for 8 weeks. Each assignment may include readings or viewing science teaching videos on Moodle. After completing the reading or video assignment, you are required to respond via an online quiz, assignment, and/or discussion forum posting, whichever is noted in that week's Moodle folder/module. NOTE: Discussion forums are in a "Q&A" format. This means that you will only be able to view other responses after you have posted your response. In addition to posting to the forum on the prompt or question(s), you are also expected to provide a thoughtful response to at least one of your classmates for each discussion forum. Grading on the discussion forum postings or video assignments will be based on these criteria:

1. **Quantity and timeliness:** Creating a post early in the week before the class period it is due, as opposed to waiting until the day before class. Response is sufficient length to fully answer the prompt or question(s). Note that this is for the initial response, but responses to others might be delayed so that you can read your classmates' responses.
2. **Demonstrates knowledge and understanding of content and applicability to professional practice:** The prompts and questions are related to the assigned text readings and/or information presented during course sessions (e.g., power points, activities, lectures). Your response should demonstrate clear evidence of knowledge and understanding of the content.
3. **Generates learning within the community:** Response is applicable, practical and elicits responses and reflection for others.

*Note: These criteria were based on [http://www.pbs.org/teacherline/courses/common\\_documents/disc\\_assess.htm](http://www.pbs.org/teacherline/courses/common_documents/disc_assess.htm) and more detail is provided at this web site.*

## **Planning for Meaningful Engagement with Important Science Ideas**

([www.ambitiousscience Teaching.org](http://www.ambitiousscience Teaching.org))

### **1) Inquiry Lesson Identification** (5 points)

For our field project (STEM Night at a local school), you will be working in a team of 2 or 3 to create and teach a lesson to groups of elementary-aged students. Once you have been assigned to a team with a specific grade level (and topic) then you will be required to locate three potential inquiry lessons that align with the teaching assignment. **Note that this is not a team assignment – each team member locates 3 inquiry lesson examples.** Provide a brief analysis of the usefulness and appropriateness of each of the three lessons according to the following:

1. Begin this assignment by reading information on your assigned topic and identify the associated NGSS standard(s). Then find or select three lessons from three different sources. These must all be inquiry lessons. They must be found in professional resources such as published texts, journals, or other peer-reviewed online sources (e.g., NSTA, NASA, Discovery, National Geographic, PBS) as opposed to sources that are not professionally reviewed such as Pinterest or teacher's blogs. Provide an electronic copy (e.g., hot linked web address) or hard copy (see Note) of the three lessons and upload them to Moodle. Also, either bring a hard copy or provide access to the digital version in class. **(2 points)**
2. Provide a brief (2-3 sentences) summary of each lesson. Think about the science teaching context and at least 3 strengths of each lesson and at least one potential concern. For each of the 3 lessons you found, list the standard (words and code) and write a thorough paragraph (150-200 words) that provides a summary of these strengths and weaknesses for the lesson. **(2 points)**
3. Proof-read your work and take care to use correct grammar and spelling. Provide correct APA references for each of the three lessons. Use the APA referencing help (APA Reference Guide, Help with APA Citations) or seek help from the professor to provide correct references. **(1 point)**

## **2) STEM Lesson Identification** (5 points)

Next, you and your STEM Night partner(s) will look for possible STEM (engineering) lessons to teach. You will locate three potential STEM lessons. **Note that this is not a team assignment – each team member locates 3 STEM lesson examples.** Provide a brief analysis of the usefulness and appropriateness of each of the three lessons.

1. Begin this assignment by reading information on your assigned topic and identify the associated NGSS standard(s). Then, find or select three STEM lessons – they may be from the same source. The lessons must be found in professional resources such as published texts, journals, or other peer-reviewed online sources (e.g., NSTA, NASA, Discovery, National Geographic, PBS) as opposed to sources that are not professionally reviewed such as Pinterest or teacher's blogs. Provide a hard copy or electronic copy (e.g., hot linked web address) of the three lessons and upload them to Moodle. Also, either bring a hard copy or provide access to the digital version in class. **(2 points)**
2. Provide a brief (2-3 sentences) summary of each lesson. Think about the science teaching context and at least 3 strengths of each lesson and at least one potential concern. For each of the 3 lessons you found, list the NGSS standard (words and code) and write a thorough paragraph (150-200 words) that provides a summary of these strengths and weaknesses for the lesson. **(2 points)**
3. Proofread your work and take care to use correct grammar and spelling. Provide correct APA references for each of the three lessons. Use the APA referencing help (APA Reference Guide, Help with APA Citations) or seek help from the professor to provide correct references. **(1 point)**

## **3) Final Lesson Modifications** (20 points)

In this assignment, you will choose one of the lessons above to teach for STEM night. Then, modify it according to the components we are focusing on in this class (e.g., Ambitious Science Teaching, High Leverage Teaching Practices, 5E, NGSS, etc). You will do this assignment in Google Docs and share the link with your instructor. You will turn in the modified lesson plan to the assignment space on Moodle before you rehearse it in class (TBD). In short, the lesson must follow the 5E instructional model, and include considerations for the cultural context (e.g., languages, perspectives) of the students who are likely to attend STEM Night, as well as considerations for special needs students. You will be provided a lesson template in class as well as a complete rubric on the scoring for this lesson assignment. Other detailed information about this assignment is available on Moodle.

#### 4) **Rehearsal and Responsive Modifications of STEM Night Lesson** (10 points)

Your team will participate in a teaching rehearsal in class on the investigation or lesson that you will be doing for STEM Night. As you are doing this think about what you are learning, how the investigation will work with your students, and modifications that should be made. After you have completed the investigation/lesson, reflect on the results, any changes that might be helpful, and what you learned as a result of the experience. You will receive points (5 total) for the rehearsal as well as your written modifications (as indicted in your original Google doc) (5 points). You will also provide and receive feedback from your peers during this rehearsal.

This modification assignment requires you to revise your science inquiry lesson **or** STEM lesson in light of the feedback you received during the in-class rehearsals and your own reflection on the rehearsal. Students will be required to hand in: (1) a copy of the original lesson that was submitted for grading, (2) the modified lesson with modifications highlighted and bolded for ease in viewing, and (3) a 1-2 page overview of the modifications you are planning in order to effectively teach the lesson, (4) the link to the Google Doc on which modifications are made (if made as a different document than the first lesson plan).

1. Lesson modifications: original and modified lesson **(2 points)**
2. Report on overview of modifications: Describe the results of the investigation/lesson: (1) What happened? What were the results? (2) What didn't go as expected? (3) What did you learn? (4) What changes do you envision for doing this with students? (5) Other reflections? **(2 points)**
3. Assignment is thorough, well-written, and free of grammatical and spelling errors. APA references as appropriate (e.g., lesson or other information) **(1 point)**

*\*The Inquiry Lesson, STEM Lesson, and Modifications may be completed as a team assignment (with your teaching partner(s)) or individually. If completed collaboratively with your teaching partner, it is expected that you will work together on all components. Therefore, you will bear responsibility for all components of the assignment as well.*

### **High-Leverage Teaching Practice Project: Eliciting and Interpreting Students' Ideas**

**Eliciting and Interpreting Assignment General Description (25 points total).** Read and review the directions: "Eliciting and Interpreting Complete Instructions" available on Moodle. For this assignment, you are required to audio or video record your interview with a student of your choosing (of any grade K-8). The student's work and responses should not be published or shared beyond the scope of this assignment. You may also need to seek assistance in making a recording of your interview, but typically, using your smart phone on a small tri-pod will suffice. You will submit:

1. Eliciting and Interpreting Written Report
2. Good quality (audible or viewable) audio or video electronic file of the interview
3. Permission verification from the parent or guardian or classroom teacher, if the teacher has this authority.
4. Self-Assessment Feedback Form

Prepare for the interview as described in the instructions. Be sure that you have the prop(s) prepared ahead of time (e.g., condensed water on clear glass) and that you have drawing materials or other materials available to the student for demonstrating their ideas. An audio or video recording must accompany your assignment submission or it will not be graded.

**Part A. Written Report (12 points)** evaluated on these components:

1. Preparation questions (4) and post-interview questions (7) are thoroughly and completely answered.
2. Evidence from the interview in the form of time-stamps and verbatim quotes are included in your responses when reasonable to support your answers. Specifically, post-interview questions 1-3 require evidence from the interview.
3. Evidence that you clearly understood the more advanced scientific ideas in questions 5-7 to show how the young student's beliefs support (or do not support) more advanced understandings.
4. Answers to reflection questions demonstrate understanding of key components of elicitation and interpretation.
5. Answers to reflection questions demonstrate insightful reflection on personal areas of strength and development.
6. Report was proof-read and care was taken to use correct grammar and spelling.

**Part B. Self-assessment/Peer Feedback (5 points):**

1. The extent to which each of the categories was documented;
2. Time-stamp evidence that provides specific information to your partner;
3. Specific quotes and other evidence that support your claims;
4. Thoroughness and completeness of the form

**Part C. Audio or Video Recording & Permission (3 points):** Audio or video recording was clearly audible or visible with correct orientation. It was uploaded in a format that is accessible. For example, if the file size is excessive it should be compressed. Permission from the parent, guardian, or teacher was uploaded.

**Part D. Eliciting and Interpreting Peer Feedback (5 points):** In class you will engage in an eliciting and interpreting scenario with your classmates. During this experience, you will act as the interviewer and the student who is interviewed and you will audio-record your work. You and your partner will share your audio-recordings with each other and provide accurate, thorough, and specific feedback to each other using the feedback form found on Moodle and shared in class. You will upload the feedback you provided to your partner to Moodle (Eliciting and Interpreting Peer Feedback) and your feedback will be evaluate based on:

1. The extent to which each of the categories was documented;
2. Time-stamp evidence that provides specific information to your partner;
3. Specific quotes and other evidence that support your claims;
4. Thoroughness and completeness of the form.

**Curriculum Resource Review Presentation - In Class Project (10 points)**

For this assignment you will simulate being on a curriculum team for a school district, charged with the task of reviewing the new science curriculum resources your district will purchase. You will first meet as a team, carefully review a given resource, and then teach your classmates the important information about the assigned curricular resource. When doing so, you will also plan a hands-on experience from the resource that captures the type of lessons that students generally experience through using that curriculum. Lastly, you will make a formal recommendation on whether the district should purchase the curriculum resource, and why.

**Team Presentation of Curriculum Resource:** Your presentation should be planned for 20-30 minutes. It should include a Power Point with: (1) Important information related to your resource (as detailed on the curriculum guide); (2) Simple directions to the science investigation; (3) Your recommendation on whether you would recommend this resource for purchase. Your presentation will generally include a short introduction to the resource and basic information highlighting its strengths and weaknesses. The majority of the time will be spent engaging your classmates in a science investigation that is representative of activities found within the resource. Additional information is available on Moodle.

### **Community Science Teaching Opportunity: STEM Night Project (20 points)**

As a class, we will be adopting a local school for the semester for which you will be designing and creating an interactive STEM Night event for students. As a class, you will work together to design the evening, conduct communication with the school, and create advertising for the event (much of this work will be done during class hours and together as a team). Lastly, you will teach the lesson you wrote and modified (as above) during STEM Night (date and time TBD). The instructor will evaluate your participation in this event and your teaching effectiveness based on several criteria. Please see the STEM Night Moodle space for detailed information about this assignment and performance rubrics.

### **STEM Night Analysis and Reflection (10 points)**

This assignment involves your analysis and careful reflection about the teaching you did as a part of STEM Night. You will provide specific information on what you did, a reflective analysis of the teaching strategies you employed with respect to professional standards and high-leverage practices, as well as an account of your teaching strengths and what you would do differently if you were to teach this lesson again. You'll find the specific assignment information and rubric in the STEM Night folder on Moodle.

### **Choice Assignment – Choose One (A or B) (20 Points)**

#### **A. Present and Attend a Professional Conference (20 Points Possible)**

Conduct a mini-presentation of a science or STEM lesson at a professional science teaching conference. This semester, OU will host a presentation at the Metropolitan Detroit Science Teachers Association Conference (<http://www.mdsta.org/>) on Saturday, November 3, 2018 at 11:00 AM. Your lesson must be reviewed and approved by instructor prior to presenting to students in class. It may be a modified version of the STEM night lesson or other lesson of your choosing. If previously turned in, then the lesson must be updated according to instructor's comments. If it is a new lesson, then the lesson must be submitted to the instructor for review before the classroom presentation. This assignment may be co-presented with one other student; however, co-presenters must share all responsibilities and take turns or "switch off" during the presentation time. Plan on being able to present the lesson in less than 10 minutes and you will repeat your presentation multiple times.

#### **Field Testing:**

It is best if this lesson is field-tested with “real students” before presenting it at OU; however, that may not be possible and is not required. If this lesson is field tested, you may include this teaching experience in your Science Teaching Hours.

### **Professional Presentation Component (12 points possible)**

Each student must:

1. not use live animals, dangerous or unknown chemicals, or have participants engage in anything that could potentially cause harm; b) provide your instructor with the presentation title and your name (s) by Session #5 **(2 points)**
2. create a one two-sided page summary or tri-fold handout of the lesson for distribution. The handout should include: names and affiliations of presenters, lesson title, purpose statement, materials list, summary of procedures, safety considerations, and lesson reference; b) prepare 50 copies of this handout, and c) keep one copy (in case you run out of handouts) that can be taped to the table. **(2 points)**
3. be at the presentation room 30 minutes in advance to set up materials; b) consider traffic, parking, and other potential complications as you plan your travel; c) be prepared with all required materials and handouts; d) present your lesson, and e) clean up your presentation site and help others to also clean up a leave in a timely manner. **(4 points)**
4. take a photo while presenting your lesson; b) write a 1-2 page reflection regarding your experience and attach the photo of you presenting at the conference. Describe what went well and what you would change if you were to do this again. **(4 points)**

### **Science Conference Report (8 points possible)**

1. A thorough description of the activities at two of the sessions of the conference. (Visiting the exhibit hall in NOT an acceptable session, although it is recommended.) If using the Oakland University Extravaganza as a session, a review of at least one lesson must be included. **(3 points)**
2. Evaluations on whether each session was well organized, included hands-on opportunities, was valuable for teachers, presented new information that was new to attendees, and the grade level appropriateness of the information. **(3 points)**
3. Overall quality (well written, thorough with appropriate length, in on time, scholarly). Any spelling or grammatical errors will result in a reduction of points earned. **(2 points)**

### **B. Five (5) Additional Teaching Experiences (20 Points Possible)**

This 20-point choice assignment provides the opportunity to teach five (5) additional lessons beyond those provided within the context of TD 5260. These teaching experiences may include opportunities provided through the Detroit Zoo (City Critters), STARBASE, your field or other locations arranged by you. The lessons you teach may be provided by the location or they may be developed by you. You must have primary responsibility for teaching, whether it a small group or a whole class lesson. To document your participation, you will be required to submit a Teaching Log and 5 separate Science Teaching Forum postings.

**Science Teaching Log:** The science teaching experience is an integral component of TD 5260. This additional experience helps future teachers develop understanding, skills, and most importantly, confidence in implementing hands-on, inquiry-based STEM experiences with students. The methods student should have a primary role in teaching science and working with students to develop scientific understanding, in order to fulfill this requirement. Simply assisting the teacher or only working with small groups (unless approved by the instructor) rather than being responsible for lesson implementation should not “count” towards this requirement. For this choice assignment, students are required to teach

five science lessons. As a student completes a teaching episode, the student completes the teaching log (provided on Moodle).

**Science Teaching Forum:** All students will be expected to post a summary and reflection for each of the five science teaching experiences you taught this semester. Your postings should provide a thoughtful and detailed reflection of your teaching opportunity (what you did, where, with whom) and highlight some of the concepts or teaching strategies we have discussed in class or you have assimilated through your readings. Reflect on what you did well and what you would do differently if you were to teach the lesson again. Feel free to respond to the prompts that your peers post, as well.

You may receive up to 4 points for each (posted separately) of your detailed teaching reflections according to these criteria:

**4 points:** Timely posting, thoughtful posting thoroughly describes the teaching experience (who, what where) and highlights specific teaching strategies implemented; posting includes a reflection of what went well and what are some areas that may need improvement.

**3 points:** Posting is thoughtful, but lacks one or more criteria listed above.

**1 point:** Posting is brief and/or does not advance the online dialogue.

**0 points:** No posting is evident.

## 10. COURSE REQUIREMENTS AND GRADING:

Assignment/Requirement	Points Possible	Total
<b>Participation, Attendance &amp; Weekly Assignments</b>		<b>65</b>
Attendance and Participation	25	
Reading/Video Quizzes and Forum Responses	40	
<b>Planning, Lesson Development &amp; Resources</b>		<b>60</b>
Science Inquiry Lesson Identification	5	
STEM Lesson Identification	5	
STEM or Inquiry Lesson Plan	20	
Rehearsal & Responsive Modifications for STEM Night Lesson	10	
Curriculum Review Presentation (in class)	10	
<b>Teaching Practices</b>		<b>25</b>
Eliciting and Interpreting Audio file and all report components	25	
<b>Teaching and Reflection</b>		<b>30</b>
STEM Night Planning and Participation	20	
STEM Night Analysis Paper	10	

<b>Choice Assignments: Individual, Choose 1</b>		<b>20</b>
Choice A: Professional Presentation at MSTA	20	
Choice B: Science Teaching (5 Lessons) at Zoo or STARBASE or Formal Field Placement	20	
	<b>TOTAL:</b>	<b>/200</b>

**GRADING SCALE**

Letter Grade	Percent	4.0 Scale	Course Points
<b>A</b>	93-100	4.0	186 - 200
<b>A-</b>	90-92.99	3.7	180 – 185.98
<b>B+</b>	87-89.99	3.3	174 – 179.98
<b>B</b>	83-86.99	3.0	166 – 173.98
<b>B-</b>	80-82.99	2.7	160 – 165.98
<b>C+</b>	77-79.99	2.3	154 – 159.98
<b>C</b>	73-76.99	2.0	146 – 153.98
<b>C-</b>	70-72.99	1.7	140 – 145.98
<b>D+</b>	67-69.99	1.3	134 – 139.98
<b>D</b>	65-66.99	1.0	130 – 133.98
<b>E/F</b>	Below 65	0.0	129 and lower

**11. BIBLIOGRAPHY:**

See complete list on Moodle.

**12. Course Timeline**

See Moodle.