



## Understanding NGSS (K-12)

**EDUO 9539** Two semester units/credits

Instructors: Gina Bergskaug [gbergskaug@dominicancaonline.com](mailto:gbergskaug@dominicancaonline.com) and  
John Boucher [jboucher@dominicancaonline.com](mailto:jboucher@dominicancaonline.com)

*\*This course is a prerequisite for the planning courses (EDUO 9540 & EDUO 9541)*

## Course Syllabus

### Course Overview

This class will explore the knowledge regarding the current K-12 science standards. Such knowledge will enable the teacher to plan a successful Next Generation Science Standard teaching unit. Upon completion of this class the teacher will:

- show understanding of the K-12 Next Generation Science Standards
- be able to plan meaningful NGSS teaching units for K-12 students

**Course Objectives:** In this course, participants will have the opportunity to will show understanding of and ability to plan NGSS by:

1. explaining the NGSS to various people with different levels of understanding
2. using assorted media to convey the information
3. critiquing NGSS information
4. relating the information gleaned to the classroom
5. being aware that NGSS assessment can be tricky
6. summarizing the NGSS knowledge learned in this course

### Course Relation to CCS or other Professional Standards

This course aligns to the standards for:

[Next Generation Science Standards](#)

### How to Submit Coursework

Combine all individual assignments and submit one document to the instructor for review. Follow assignment instructions on how to prepare and submit in the Assignment Dropbox. Name the file submitted with your last name and the course number (i.e. Brown, EDUO 9539). Make sure you place your full name, course number and assignment number at the top of each document page. You will receive feedback from your instructor within 5 days indicating successful completion of the assignment or the need for revision. Assignment grades will be averaged for the final course grade. A grading assessment rubric is located in this document.

## Course Assignments –

### A) Demonstrate your understanding

After reading and studying website 1, respond to A1 – 8

- 1) <https://www.nextgenscience.org/sites/default/files/NGSS%20DCI%20Combined%2011.6.13.pdf>
  - Scroll down and find the grade storyline for the level that you teach. Study the storyline. To show your understanding, relate the material to the following three people in a manner appropriate for them.
    - A1. a student in your class
    - A2. a parent of a student in your class
    - A3. an administrator in your school
  - The NGSS for your grade level are explained after the storyline for your grade level. Study them and then select one and explain how you would create some type of classroom display to illustrate that NGSS.
    - A4. a detailed explanation of that classroom display that demonstrates understanding of the selected standard
  - You have written a book about how to teach one of the NGSS (but not the one in A4) and you have purchased an ad in EDWeek about that book. Sell the book by explaining the NGSS you have chosen to put in the book.
    - A5. a detailed advertisement that demonstrates understanding of the selected standard
  - You have just finished teaching a classroom lesson concerning yet another NGSS. You are very excited because of how well the lesson was received by the students. As soon as you arrive home you write an email to a very close friend telling them why you are so excited and explain what the lesson was about and how it unfolded.
    - A6. the text of that email
- A7. Choose a NGSS for your grade level that you are uneasy about teaching and tell why. Provide specifics
- A8. How would you go about easing the anxiety of teaching the NGSS in A7?

Read and study website #2

#2 <http://www.nextgenscience.org/next-generation-science-standards>

- View the two videos – “NGSS Overview” and “Why NGSS”
- A9. You have produced a video similar to the NGSS overview video. What does your video look like?
- A10. You have been asked to appear in the Why NGSS video. What will you say?
- A11(E)- 17(E) are for Elementary Teachers only**

Click on the link below (#3) to the NSTA NGSS Hub. You will see NGSS Standards sorted by grade and topic. Select a particular set of standards (ie Grade 1, Waves: Light and Sound) and follow the link. After scrolling down past the standards, you will see multiple lessons that address the standards down the right hand side of the page. Choose 1 lesson from the list.

#3 <https://ngss.nsta.org/AccessStandardsByTopic.aspx>

**A11(E).** State which grade and standard along with the specific lesson you choose. Also list the link to the specific lesson.

**A12(E).** Critique the lesson regarding its appeal to primary teachers.

**A13(E).** **Website #4 shows how a teacher can rope together disciplinary core ideas, crosscutting concepts, and science and engineering practices.**

#4 <http://nstacomunities.org/blog/2014/09/09/how-can-elementary-teachers-work-toward-the-vision-of-the-next-generation-science-standards/>

**Click on** these three links ([disciplinary core ideas](#), [crosscutting concepts](#) & [science and engineering practices](#)) and explain each in A15 -17

**A14(E).** disciplinary core ideas

**A15(E).** crosscutting concepts

**A16(E).** science and engineering practices

**A17(E).** Return to the lesson you choose in A11(E). Explain how this lesson addresses each of these (A14-A16).

#### **A11(S) – A17(S) are for Secondary Teachers only**

Read and study Website #5 and then respond to A11(S) – A14(S)

#5 <http://www.nextgenscience.org/ngss-high-school-evidence-statements>

Choose one lesson that you would like to teach in the four categories (even if your teaching assignment is limited to only one or two of the categories, please expand your thinking to review all four categories) listed on the website and state your reasons for this choice.

**A11(S).** physical science

**A12(S).** life science

**A13(S).** earth & space science

**A14(S).** engineering, technology & application science

Read and study website #6 and #7 respond to A15(S) – A17(S)

#6. [http://www.ngsslifescience.com/biology\\_lesson\\_plans.html](http://www.ngsslifescience.com/biology_lesson_plans.html)

#7. <https://ngss.nsta.org/Classroom-Resources-Results.aspx?resource=>

Scroll down until you find lesson plans by subject. Look them over and choose three that you would like to teach and tell why

**A15(S).** Plan 1

**A16(S).** Plan 2

**A17(S).** Plan 3

#### **For all teachers**

- *Read and study website #8*

#8. <https://ssec.si.edu/stemvisions-blog/science-assessment-next-generation>

**A18.** Discuss problems for teachers in assessing the NGSS.

Look over website #9 <http://www.resa.net/curriculum/curriculum/science/professionaldevelopment/ngss-pd/lesson-plans-exploring-ngss/>

**A19.** Choose a lesson from website #9 for your grade level and develop assessment techniques for that lesson.

**B Summary**

You have now been recognized as an expert on understanding and explaining the Next Generation Science Standards. Because of this your principal has asked you to address the local service club that partners with your school. You have enthusiastically accepted and have prepared a speech that highlights what you have learned in this class.

- B1.** compose the introduction
- B2.** outline the body
- B3.** write out the conclusion

**Course Assessment Rubric**

<b>EXCELLENT</b> Meets or Exceeds Course Objectives: A to A -	<b>ACCEPTABLE</b> Majority of Work Meets Course Objectives: B + to B -	<b>NOT ACCEPTABLE</b> Needs Considerable Improvement: Resubmit Work Suggested: C or below
Responses are well organized with specific details excellently expressed and every requirement completed	Material is relevant as it connects to each assignment	Ideas are not clear or relevant and not well organized
Shows ability to transform knowledge into very successful teaching lessons	Shows the ability to transform knowledge into the classroom	Shows little to no understanding of the how to transform knowledge into the classroom
Creatively and clearly summarized the knowledge learned	Summarized the knowledge learned	Provided few or no facts or specific details of the learned material

**Addendum:**

- You are allowed 9 months to complete the course. Course questions? Contact your instructor by email.
- For questions involving your registration please contact us at [support@dominicanCAonline.com](mailto:support@dominicanCAonline.com) or call (800) 626-5080. To change your address, link to your Dominican Store account at [https://www.dominicanaonlinestore.com/store/index.php?main\\_page=login](https://www.dominicanaonlinestore.com/store/index.php?main_page=login)