



UNIVERSITY OF NORTH GEORGIA
College of Education

SIED4500
Fall, 2017

View Supplemental Syllabus at <http://ung.edu/academic-affairs/policies-and-guidelines/supplemental-syllabus.php>

CAMPUS CARRY - Georgia House Bill 280, commonly referred to as the “campus carry” legislation, takes effect as of July 1, 2017. For more information on this new law (which amends O.C.G.A. § 16-11-127.1) and how it will be implemented on University System of Georgia campuses, please read [Chancellor Wrigley’s guidance to the USG community](#), dated May 24, 2017.

GENERAL INFORMATION

Instructor: Donna Governor, PhD

Office: Dunlap 106B

Email: donna.governor@ung.edu

Office Hours: Tuesday 2:00 – 5:00, Wednesday 10:00 – Noon, & 3:00 – 4:00

TEXT, TECHNOLOGY AND OTHER MATERIALS

- **Text:** You will be reading free, open resource documents throughout this course in place of a traditional textbook. Most of the readings will come from reports from the National Academy of Science and published by the National Academies Press. You will need to create an account at: <https://www.nap.edu/> to download readings. Weekly readings are listed in the class schedule (below).
- **Supplemental Readings:** TBD
- **LiveText, Inc.:** All students in Teacher Education programs must have a subscription LiveText. LiveText is an online management system for all materials and documents, a way to collaborate

online with fellow students and faculty, and a way to submit assignments for feedback. LiveText provides online help. You may also contact Kathy Moody at kmoody@ung.edu for assistance. If you do not purchase and activate/register LiveText by the end of drop/add, you may be 'withdrawn without penalty' (W) from class.

For those without LiveText, go to your bookstore or purchase online at www.livetext.com. Purchase and **register** for the 'Field Experience Edition', being sure to add your student employee number correctly. Use your @ung.edu email address and **register with the 'University of North Georgia'**.

For those with LiveText through another institution, contact LiveText at support@livetext.com (866-548-3839) and ask them to 'add the University of North Georgia domain to username [your LT username]'. **Do not ever repurchase LiveText!** If your subscription has expired, you are able to add subscription years to your current account at minimal expense.

If you have LiveText but not the 'Field Experience module', you will need to have the \$15 'add-on program' added to your current account. **Do not repurchase LiveText!** Log into your LiveText account. Click on 'My Accounts' (in upper right corner) and purchase the 'FEM add-on' for \$15. This will allow us to place you in your field experiences.

Desire to Learn (D2L):

University System of Georgia's **Desire2Learn Help Center** provides assistance through their 'knowledge base' <http://d2lhelp.view.usg.edu/> & 855.772.0423. The USG D2L Help Center is available 24 hours a day, 7 days a week. The Online Support Center site includes a 'knowledge base'. There are sections for students & instructors. You can also call for [technical support](#). Please encourage students to check the 'knowledge base' before calling tech support. Also reference [CTLE's D2L website](#).

COURSE DESCRIPTION

SIED4500 is a course designed to prepare middle grades and secondary science teachers to deliver hands-on, content rich science instruction and to engage students in the process of science. Georgia Standards of Excellence for Science will be used as the basis for implementation of instruction. The course will also examine psychological underpinnings of science learning, science curricula and standards, classroom logistics and safety, teaching strategies, and assessment. Prerequisite: Admission to Teacher Education.

COURSE OBJECTIVES (EXPECTED OUTCOMES)

Objective	INTASC Standard	ACEI Standard	COE Conceptual Framework	Evaluation Method
1. The student will be able to understand the nature of scientific evidence.	4, 5, & 7	2.2a, 2.2g	1a, 2a, 1c	Projects, Quizzes
2. The student will be able to utilize the scholarly literature to find materials and information for their classroom.	1, 3, 4,5, 7, 8, 9, 10	2.2b	1a, 1b, 1c, 1d, 2a, 2b	Projects, Quizzes
3. The student will be able to use metric measurements.	1, 4, 5, & 7	2.2b	2a, 2c, 2d	Projects, Quizzes
4. The student will be able to identify student conceptions and misconceptions and use to guide instruction.	1, 4, 5, 7, 8,	2.2g	1b, 2c,	Projects, Quizzes
5. The student will be able to assemble and deliver content rich, hands-on, inquiry based activities.	1, 2, 3, 4, 5, 6, 7, 8, 9	2.2d	1a, 2c, 2e, 3a, 3b, 3c, 3d	Projects, Quizzes
6. The student will understand the safety issues related lab science activities.	5, 7, 8,	2.2b	2a, 3c, 2d, 2e	Safety Certification

METHODS OF INSTRUCTION

Face-to-face, Online Learning Environment, Collaborative Group Learning, Microteaching, Demonstrations/Presentation

EVALUATION METHODS

The percentages for each area of evaluation are listed below. *The instructor reserves the right to amend the evaluation topics and percentages with advance notice provided to the students.* **All submissions must be an ORIGINAL product. Every submission will be checked for originality. Plagiarism will result in a grade of ZERO.**

Category	Item(s)	Due Date	Weight
NSTA Learning Center	Create and build an NSTA Learning Center library	August 30	10%
Science Safety Certification	Complete either the middle or high school science safety course through Flinn Scientific online	September 16	15%
Position Paper	KEY ASSESSMENT Position Paper	October 11	25%
Assessment Evaluation	Assessment evaluation with reteaching activity	November 3	10%
Final Project	Unit Plan	December 6	15%
Weekly Reading Assignments/Quizzes	Reading Quizzes and/or Online Discussion Participation	Weekly	25%

COURSE GRADING

- Weekly Reading Quizzes – 25% - There will be a set of questions related to each week's reading assignments that will be answered for each week's reading. This will be completed each week as a "quiz" in D2L and is due on the Monday BEFORE the class we will be discussing the readings in. Each and every class we will discuss our assigned reading topics in class. Each week's online "quiz" will include a place for a reflection on the previous week's discussion and you expected to fully participate for full credit. **Due Weekly.**
- NSTA Learning Center Library – 10% - You will create a free account at the NSTA Learning Center and upload a minimum of 10 resources. You will create a library of resources (minimum 10) that you can use to teach science concepts in your own class. **Due 8/30.**
- Science Safety Certification – 15% - You will complete the Flinn Science Safety Course for either high school or middle school (<https://labsafety.flinnsci.com/Home.aspx>). You will have to create a free account for certification. Certificate of safety course completion. **Due 9/16.**
- Position Paper – 25% – **KEY ASSESSMENT** - You will write a position paper on the teaching of science that includes your views on the teaching of science – as a paper for this course. This is one of key assessments for this course and will be submitted **via LiveText**. (see Guideline & rubric). You will be writing this paper in sections throughout the first half of the course. You will compile those sections into a midterm paper and submit to Livetext for this key assessment. **Due 10/13.**
- Assessment Evaluation – 20% - You will conduct a data analysis of one assessment used in your classroom and identify areas of strengths and weakness. You will design a reteaching activity for one area for which students need reteaching. **Due 11/3**
- Final Project – 15% - You will prepare a unit of instruction for one or more standards, that includes the following components.
 - Standards overview
 - Unit map, including daily schedule
 - Description of introductory phenomena
 - 2 Specific, 3-dimensional learning activities in 5E format
 - 1 Project based activity, with rubric
 - Evidence of differentiation
 - Assessment

This unit will be shared during the final 2 class meeting. **Due 12/6**

ATTENDANCE

The nature and design of this course requires your attendance for the various learning activities that take place, therefore, **attendance is required at ALL sessions for this course**. Should they occur, individual absences will result in a 5% deduction from your overall grade. Students missing more than four classes, *for excused or unexcused reasons*, will be withdrawn from the course and given a grade of 'WF.' The only excuses for absence are personal illness, personal/family emergency, and death of someone in the immediate family and ONLY with documentation.

Coming to class on time is also a critical component of this class; therefore, being tardy (coming in five minutes or more after scheduled start time) will be equal to half of an unexcused absence. In addition to grade consequences, excessive absences and tardies will be noted in the College of Education disposition reporting system.

Students should make copies of all assignments they wish to keep prior to submission for grading. The original document should be submitted for grading. Late assignments carry a penalty of **10% per day late**.

In addition to the **5% per absence penalty, any work missed due to an unexcused absence will receive a grade of zero (0)**. Work missed with an excused absence **will be graded only after official documentation**

substantiating the absence is turned in to the instructor. Each case, should they arise, will be judged individually.

If a student's absences exceed 14% of the scheduled class meetings for the semester or the student fails to attend 10% of any class meetings prior to the midpoint of the term, the student will be subject to being dropped from the class roll with a 'WF'.

Documentation accounting for a student's absence may be requested. Please note that habitual tardiness and/or absences to class will affect your grade and may result in your removal from the roll.

If a student chooses to withdraw from the course it is that student's responsibility to complete the withdrawal process. Students who cease attending class without formally withdrawing receive a grade of WF for the course. Students with two or more absences may receive a grade of WF.

Grades of I (Incomplete) are awarded only in cases of serious illness and other significant non-academic circumstances. The instructor reserves the right to make the final decision with regard to granting a grade of "I".

COURSE COMMUNICATION

When questions arise outside of class time, please feel free to contact me. Outside of class, I am available during office hours, through UNG email, or by phone. **UNG Email is the quickest way to reach me**, but please respectfully allow 48 hours, not including weekends and holidays, for a reply.

ASSIGNMENTS AND ASSESSMENTS

Your grade in this course will depend on a number of factors. The percentages for each area of evaluation are listed below. *The instructor reserves the right to amend the evaluation topics and percentages with advance notice provided to the students.* **All submissions must be YOUR ORIGINAL work. Plagiarism will result in a grade of ZERO. Every submission will be checked for originality through the Turnitin.com system.**

COURSE CALENDAR

- First Day of Class: August 21
- Drop/Add period ends: August 25
- Online Learning Day(s): September 13
- Withdrawal Deadline: October 13
- Holiday: September 4
- Classes end: December 8

SIED4500 Course Weekly Schedule

Note: Reading Assignments are Tentative and Subject to Change

Date(s)	Topic(s)	Activities & Assignments
Week 1: Aug. 23	Course Overview Syllabus, Introductions, NSTA Learning Center	STEBI pre-assessment Create NSTA LC Account - LC Library DUE 8 /30 Start on Science Safety Certification DUE 9/16
Reading Assignment:	Read & Complete Quiz by 8/28: Taking Science to School , Chapter 2: Goals for Science Education AND Chapter 6: Understanding How Scientific Knowledge is Created	

Week 2: Aug. 30	Nature of Science	Video: How Simple Ideas Lead to Scientific Discoveries <u>Follow Up:</u> Write a 1-page essay about why teaching science is important. Include citations from assigned & other references. APA format.
Reading Assignment:	Read & Complete Quiz by 9/4: How People Learn , Chapter 1: Learning – from Speculation to Science Learning and Understanding Chapter 6: Learning with Understanding, 7 Principles	
Week 3: Sept. 6	Learning Theories & Conceptual Change	Videos: Lessons from Thin Air (segment), Conceptual Change <u>Follow Up:</u> Write 1-page essay about your position on how students learn science. Include citations from assigned AND additional references. APA format.
Reading Assignment:	Read & Complete Quiz by 9/11: America's Lab Report , Chapter 6: Facilities, Equipment and Safety	
Week 4: Sept. 13	Safety	<u>Online Learning Week:</u> Complete either the middle or high school level Flinn Science Safety Course by 9/16.
Reading Assignment:	Read & Complete Quiz by 9/18: (1) Seeing Students Learn Science , (2017) Chapter 1: What's Really Different? pages 1-18 (2) Science Teachers' Learning: Enhancing Opportunities, Creating Supportive Contexts , (2015) Chapter 2: A New Vision of Science Teaching & Learning, pages 27-46	
Week 5: Sept. 20	3D Learning, Including: <ul style="list-style-type: none"> • Science & Engineering Practices • Cross Cutting Concepts 	Video: Doing Science
Reading Assignment:	Read & Complete Quiz by 9/25: BSCS Why Does Inquiry Matter? Inquiry and the National Science Education Standards , Chapter 6: Making the Case for Inquiry	
Week 6: Sept. 27	Investigations & Inquiry	Video: 3 Rules to Spark Learning <u>Follow Up:</u> Write 1-page essay about your position on how science should be taught. Include citations from assigned AND additional references. Include readings due 9/20 and 9/27 in your references. APA format.
Reading Assignment:	Read & Complete Quiz by 10/2: Developing Assessments for the Next Generation Science Standards Chapter 4: Classroom Assessment	

Week 7: Oct. 4	Assessment	Video: Making a Rubric Follow Up: Write 1-page essay about your position on how science should be assessed. Include citations from assigned AND additional references. Include readings due 10/4 in your references. APA format. Assessment Activity due 11/3
Reading Assignment:	Read & Complete Quiz by 10/9: The BSCS 5E Instructional Model: Origins & Effectiveness	
Week 8: Oct. 11	5E Model	Video: Teaching with the 5E Learning Cycle Position paper due 10/11 to Livetext
Reading Assignment:	Read & Complete Quiz by 10/16: Science Teaching Reconsidered , Chapter 2: How Teachers Teach, Specific Methods	
Week 9: Oct. 18	Teaching Strategies	Video: Asking Effective Questions
Reading Assignment:	Read & Complete Quiz by 10/23: America's Lab Report Chapter 3: Laboratory Experiences and Student Learning	
Week 10: Oct. 25	Laboratory Science	Video: Create your Own Science Lab
Reading Assignment:	Read & Complete Quiz by 10/30: Effective Instruction, What Does Research Tell Us?	
Week 11: Nov. 1	Planning & Unit Instruction	Video: Using Phenomena Assignment: Unit Plan due 12/6
Reading Assignment:	Read & Complete Quiz by 11/6: STEM Integration in K-12 Education: Status, Prospects and and Agenda for Research , Chapter 2: A Descriptive Framework for Integrated STEM Education	
Week 12: Nov. 8	STEM Education & Engineering Design	Video: Engineering Crash Course
Reading Assignment:	Read & Complete Quiz by 11/13: Frameworks for K-12 Science Education , Chapter 11: Equity & Diversity in Science & Engineering Education	
Week 13: Nov. 15	Differentiation Equity & Diversity	Video: Closing the Gender Gap
Reading Assignment:	Read & Complete Quiz by 11/27: Surrounded by Science , Chapter 1: Informal Environments for Learning Science	

Week 14: Nov. 29	Learning Beyond the Classroom	Video: Economic Value of Informal Science Education
Reading Assignment:	Read & Complete Quiz by 12/4: Science Teachers Learning : Chapter 6, Enhancing Opportunities, Creating Supportive Contexts	
Week 15: Dec. 6	Professional Development	Video: Hey Science Teachers, Make it Fun