

**Dewar College of Education and Human Services**  
**Valdosta State University**  
**Department of Middle, Secondary, Reading, and Deaf Education**

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**MGED 4200**

Science Methods for Middle Grades Education  
3 Semester Hours

**Guiding Principles (DEPOSITS)**

**(Adapted from the Georgia Systemic Teacher Education Program Accomplished Teacher Framework)**

Dispositions Principle: Productive dispositions positively affect learners, professional growth, and the learning environment.

Equity Principle: All learners deserve high expectations and support.

Process Principle: Learning is a lifelong process of development and growth.

Ownership Principle: Professionals are committed to and assume responsibility for the future of their disciplines.

Support Principle: Successful engagement in the process of learning requires collaboration among multiple partners.

Impact Principle: Effective practice yields evidence of learning.

Technology Principle: Technology facilitates teaching, learning, community-building, and resource acquisition.

Standards Principle: Evidence-based standards systematically guide professional preparation and development.

**National Professional Association/Accreditor Standards/Competencies/ Learning Outcomes**

*InTASC Model Core Teacher Standards\**

*(To be used for all educator preparation program courses. Identify those that apply specifically to this course.)*

Standard #1: Learner Development. The teacher understands how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and designs and implements developmentally appropriate and challenging learning experiences.

Standard #2: Learning Differences. The teacher uses understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards.

Standard #3: Learning Environments. The teacher works with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation.

Standard #4: Content Knowledge. The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and creates learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content.

Standard #5: Application of Content. 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.

Standard #6: Assessment. 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.

Standard #7: Planning for Instruction. 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.

Standard #8: Instructional Strategies. 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.

Standard #9: Professional Learning and Ethical Practice. The teacher engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.

Standard #10: Leadership and Collaboration. The teacher seeks appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession.

*\*Council of Chief State School Offices, (2013, April). InTASC model core teacher standards and learning progressions for teachers 1.0. Retrieved from [http://www.ccsso.org/Documents/2013/2013\\_INTASC\\_Learning\\_Progressions\\_for\\_Teachers.pdf](http://www.ccsso.org/Documents/2013/2013_INTASC_Learning_Progressions_for_Teachers.pdf)*

## **COURSE DESCRIPTION**

**Appropriate 2999 course and admission to the MGED professional program; Co-requisite: MGED 4620.** Designed to examine the teaching of science methods in middle grades (4th-8th). The emphasis of the course is on principles and methods for teaching middle grades science in accordance with national and state standards. The focus of the course is on students' acquisition and application of science content, process, and problem solving skills. A field experience is required.

## **REQUIRED TEXTBOOKS / RESOURCE MATERIALS**

Chiappetta, E. L. & Koballa, Jr. T. R. (2015). Science Instruction in Middle and Secondary Schools: Developing Fundamental Knowledge and Skills, 8<sup>th</sup> Edition. Allyn & Bacon, Boston

Readings from:

Science GSE. Science Georgia Standards of Excellence. Georgia Department of Education.

NSTA. National Science Teachers Association

NGSS. Next Generation Science Standards

National Research Council, A framework for k-12 Science Education

**COURSE OBJECTIVES** (*Indicate alignment with the above standards, competencies, program objectives, and/or student learning outcomes.*)

Numbers in parentheses following objectives refer to InTASC Standards.

By the end of the semester, candidates will:

1. Demonstrate knowledge and skills needed for teaching science in middle grades classrooms in accordance with ethical conduct and professional standards (InTASC Standards 4, 5, 6, 8; TL<sub>1.2</sub>, AL<sub>1.3</sub>).
2. Use a variety of strategies, motivational techniques, and assessment procedures for problem solving and inquiry-based learning (InTASC 3-9, AL<sub>1.1, 1.3</sub>).
3. Develop science lessons based on the Georgia Standards of Excellence and NGSS that will instruct and motivate students, as well as provide for individual differences of middle grades students. Use technology to analyze instructional effectiveness. (InTASC Standards 1, 2, 4, 5, 7, 8, 9; DL<sub>2.1</sub>, DL<sub>2.2</sub>, DL<sub>2.3</sub>, TL<sub>1.2</sub>, AL<sub>1.1</sub>, FL<sub>1.1</sub>, FL<sub>1.2</sub>, FL<sub>1.3</sub>, FL<sub>2.2</sub>, CPL<sub>1.3</sub>, CPL<sub>2.1</sub>).
4. Use concrete models to teach new concepts, to expand and reinforce established concepts, and to help students see familiar topics in new and different ways (InTASC Standards 5, 8; FL<sub>1.2</sub>, FL<sub>1.3</sub>, CPL<sub>1.1</sub>, CPL<sub>1.2</sub>).
5. Use technology to assist in students' learning science content and process skills, and to meet the diverse needs of students (InTASC Standards 5, 7, 8; TL<sub>2.1</sub>, TL<sub>2.2</sub>, AL<sub>1.3</sub>, FL<sub>2.3</sub>).
6. Collaborate with other educators to plan and provide for students' effective learning experiences (InTASC Standards 4, 5, 7, 8, 10; EDL<sub>2.2</sub>).
7. Connect science and technology to other disciplines through applications and interdisciplinary curriculum models (InTASC Standards 1, 2, 3, 4, 5, 7, 8, 10; TL<sub>2.1</sub>, TL<sub>2.2</sub>).
8. Demonstrate a developmentally appropriate learner-oriented approach to teaching science while accommodating the multicultural diversity of middle level students (InTASC Standards 1, 2, 3 9; DL<sub>2.2</sub>, DL<sub>2.3</sub>, CPL<sub>3.1</sub>, CPL<sub>3.2</sub>, CPL<sub>3.3</sub>).
9. Demonstrate knowledge of state and national professional science organizations, the services they offer, and professional literature available for middle grades science teachers (InTASC Standards 4, 9, 10; TL<sub>1.3</sub>, EDL<sub>1.1</sub>, FL<sub>1.2</sub>, CPL<sub>1.1</sub>).
10. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools (InTASC S2,S 3,S5, S10; AMLE S4, S5; NCTE S2, S5; DL2.1, DL2.2, DL3.2, TL2.3, EDL3.2, FL2.2, and FL2.3)

## COURSE ACTIVITIES/ASSIGNMENTS/REQUIREMENTS

A brief description of each assignment is included; however, you will be provided a more detailed description of assignments and rubrics in class. Name and save all assignments using this format:

YourLastnameFirstinitial\_nameofassignment. For example, if your name is John Doe, then, save your document as Doe\_LessonPlan1. Magnify and save all documents at 150%. Submit all assignments in BlazeView by 11:59 p.m. on the due date.

*Designing a Learning Environment: (10 points).* Middle grades educators must create learning environments that encourage positive social interaction, active engagement in learning, and self-motivation. You will design your own learning environment. You will refer to the National Science Teacher Association website for literature and resources to optimize learning in the science classroom. (InTASC 3, 9)

*2 Lesson Plans: (10 points each).* During the semester, you will research, select, and plan two inquiry-based science lessons. You will use the attached MSRDC approved lesson plan format. Lesson plans should indicate the appropriate connections to the Common Core Georgia Performance Standards. You may obtain strategies from professional journals, professional books, class discussions, or your independent study. (InTASC 4-8)

*Pre/post assessment of Learning Segment (5 points).* Students should be pre and posted to note any gains in achievement and to target and adjust instruction. Thus, as part of the learning segment, you will develop a pre and post assessment that will measure students' understanding of the content. (InTASC 2)

*EdTPA Task 1 (10 points).* After completing your learning segment, you will complete Task 1 of EdTPA, Planning for Instruction and Assessment. (InTASC Standards 1-8).

*BV Discussions: (10 points).* To assess and integrate your knowledge of class assigned readings and discussions, you will respond to professor-assigned discussion prompts and to two of your classmates' responses. (2 point each). (InTASC Standards 4)

*Reflective Practice: (10 points).* Students will write critical reflections on observations and participation in middle school science classrooms. The number of reflections will vary based on questions provided by the professor. (InTASC 9-10)

*Professional Literature Review: (15 points).* You will create an annotated bibliography of relevant research that informs your thinking and practice. The annotated bibliography will include 5 journal articles/books in specified areas of interest. (InTASC 9, 10)

*Teaching simulation: (10 points).* In the teaching profession, educators are often asked to teach and share lessons with peers as part of school-wide professional development. As a final class project, you will teach a student-centered, hands-on, minds-on inquiry-based science mini lesson to your peers. The lesson will be a collaboratively planned. (InTASC 10)

*Participation (Total: 10 points).* The grade for participation includes attendance, evidence of preparation and planning for class, demonstrated ability to interact effectively with peers, completing an equal share of group assignments, and adequately completing clinical experiences. (InTASC Standards 4)

Hahira Middle School (HMS) clinical experiences (8 points). As part of the Professional Development School (PDS) experience, you will participate in a number of clinical activities (e.g., teaching HMS middle schoolers, dissecting frogs (or similar), judging science fair projects, etc.) during our course meetings at HMS (InTASC Standards 4, 5, 6, 8)

*Completion of SOI (2 points).* At the end of the course, complete your Students Opinion of Instruction (SOI) within the dates specified by the college.

## **COURSE EVALUATION**

If 0 points are accumulated in any of the following categories, student will be ineligible to receive a grade of A.

**LATE WORK: NO LATE WORK WILL BE ACCEPTED.** If you are going to miss class and you have an assignment due, it is your responsibility to get it to me. You can do this by submitting it on BlazeView or sending it to me via email. In the event that a late assignment is accepted, it will automatically be reduced by a letter grade. In addition, assignment grade and feedback may be returned at the instructor's discretion.

## **Assessment/Evaluation**

## **Point Value**

*Positively Impacting Learning Through Evidence-Based Practices*

Designing a Learning Environment	10
EdTPA and Learning Segment	35
Lesson Plan I (0 points, free feedback)	
Lesson Plan II (10 points)	
Lesson Plan III (10 points)	
Pre/posttest (5 points)	
EdTPA Task 1 (10 points)	
BV Discussions	10
Reflective Practice	10
Professional Literature Review	15
Teaching Simulation	10
Participation	10
HMS teacher feedback (8 points)	
Completion of SOI (2 points)	
<i>Overall Point Value</i>	<i>100 points</i>

### **Grading Scale**

A = 100 - 90	D = 69 - 60
B = 89 - 80	F = 59 - 0
C = 79 - 70	

### **ATTENDANCE POLICY**

*When students are compelled for any reason to be absent from class, they should immediately contact the instructor. As per the VSU Undergraduate Bulletin (2014-15), “A student who misses more than 20% of the scheduled classes of a course will be subject to receiving a failing grade in the course” (p. 87). A student who is absent for two class meetings will automatically be penalized a letter grade.*

### **PROFESSIONALISM**

The following areas describe the professional expectations for all preservice students in the Department of Middle, Secondary, Reading, and Deaf Education.

#### *Professionalism - Ethics*

Educators are professionals guided by ethical commitments to their students, their families and to the communities in which they work. (See: The Code of Ethics for Educators at <http://www.gapsc.com/Rules/Current/Ethics/505-6-.01.pdf>).

Professional values of teachers include respect, integrity, collaboration, active participation, building alliances, resolving conflicts, and reflective, intellectual inquiry. It is expected that candidates conduct themselves with the professionalism that is required of professionals in the field. If at any time a student’s actions or attitudes are judged to be less than professional appropriate remedial action will be taken.

#### *Professionalism – Dress code*

In this course, classes are held in public schools. Professional dress code is required.

#### *Professionalism – Communication*

Effective written and verbal communication skills are critical to you as a professional educator as you interact with students, colleagues, administrators, and parents. Those individuals whose communication skills (verbal or written) indicate a need for assistance will be referred to the appropriate services on campus.

### *Professionalism - Assignments*

All assignments should conform to the professional standards expected of university students. Papers must be typed, double-spaced in an appropriate font style and size with no spelling or grammatical errors. Assignments will be graded on content, composition, spelling, punctuation, and grammar. In papers, ideas obtained from sources must be documented using APA style. Proofread and correct papers before they are submitted. Name and save all assignments using this format:

YourLastname\_nameofassignment. For example, Doe\_LessonPlan1. Magnify and save all documents at 150%.

### *Professionalism - Diversity*

Professional educators are expected to embrace diversity. A variety of materials and instructional strategies will be used to meet the needs of different learning styles of diverse learners in the class. Students will be provided with opportunities to gain the knowledge, skills, and understanding to provide effective instruction in multicultural classrooms. Mutual respect for people of diverse characteristics, beliefs, and abilities should be evident for all teacher candidates.

### *Professionalism - Technology*

As part of our conceptual framework, the College of Education is committed to preparing professional educators who are technology competent. As a result, technology has been infused into our education courses.

### *Professional Improvement Plan*

The purpose of the Professional Improvement Plan (PIP) process is for faculty to identify students who may need remediation or intervention to successfully complete the professional requirements for their program of study. For more information see the [Professional Improvement Plan Process](#) on the COEHS website.

## **DEWAR COLLEGE OF EDUCATION & HUMAN SERVICES POLICY ON PLAGIARISM**

<http://www.valdosta.edu/colleges/education/deans-office/policy-statement-of-plagiarism.php>

## **DEPARTMENT OF MIDDLE, SECONDARY, READING, AND DEAF EDUCATION**

### **STATEMENT ON ACADEMIC INTEGRITY**

- In assignments and discussion postings, you should never provide names or identifying information about other people (students, other professionals, or parents). For confidentiality, you should use pseudonyms for students and should not identify schools unless you are using information that is publically available.
- All assignments should be your own original work, not group work. If you use ideas from other sources, you must provide a full citation using APA style – name(s) of author(s); date of publication; title of article/book/web page; name and location of publisher (book), name of journal, or URL of website. Do not share your work with others. If student A uses work from student B with or without permission, both students receive zero grades for the assignment.

## DESCRIPTION OF ACADEMIC DISHONESTY

To ensure there are no chances for students to misunderstand what constitutes plagiarism, cheating, or prohibited collaboration across the University System of Georgia, this section will describe in some detail the behaviors which are viewed as academically dishonest.

While students are likely to understand plagiarism as stealing someone's words as their own, there are many types of plagiarism.

- **Stealing Verbatim:** This is exactly as it sounds. If, when composing an assignment, students take a sentence, a portion of a phrase, or even a unique expression which is not theirs, and submit it as their own (without quoting the original source), they have committed plagiarism. **Sentences that are verbatim or nearly verbatim (more than 70% match) should be both quoted and cited.**
- **Use of Professional Resources Without Acknowledgement.** Students may not use published professional resources, including lesson plans, learning activities, or PowerPoint presentations, without citing the source.
- **Misquoting:** If, when composing an assignment, students directly quote a source and cite it, but alter the author's words to strengthen their argument, they have committed plagiarism.
- **Paraphrasing or Summarizing Without Citing:** An allowable practice in academia is for students to take an author's words, change the words (without changing the meaning) so that it better fits their narrative. Paraphrasing goes beyond changing a couple of words. However, even when paraphrasing or summarizing another author's words, students *must* cite that original source. If they do not cite the original source, they have effectively stolen the original author's idea and have committed plagiarism.
- **Duplicating Publication:** Students may not reuse or recycle any previous assignments used in another course, or in any other published venue, without the explicit permission from the course instructor. Instructors do *not* allow students to reuse or recycle their assignments in any course. If students have done this, they have committed plagiarism.
- **Duplication of Peer Student Work:** Students may not submit assignments that duplicate in whole or part the work of other students, with or without the other student's express consent or knowledge.

**Note: Assignments in this course may be checked electronically for plagiarism.**

By taking this course, you agree that all required course work may be subject to submission for textual similarity review within BlazeVIEW. For more information on the use of Turnitin at VSU see [Turnitin for Students](http://www.valdosta.edu/academics/academic-affairs/vp-office/turnitin-for-students.php) (<http://www.valdosta.edu/academics/academic-affairs/vp-office/turnitin-for-students.php>).

## ACCESSIBILITY STATEMENT

Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning

nondiscrimination policies is the University's Title IX Coordinator: Director of the Office of Social Equity, [titleix@valdosta.edu](mailto:titleix@valdosta.edu), 1208 N. Patterson St., Valdosta State University, Valdosta, Georgia 31608, 229-333-5463.

**Access Statement:** Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU's Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu).

## **STUDENT OPINION OF INSTRUCTION**

At the end of the term, all students will be expected to complete an online Student Opinion of Instruction survey (SOI) that will be available on BANNER. Students will receive an email notification through their VSU email address when the SOI is available (generally at least one week before the end of the term). SOI responses are anonymous, and instructors will be able to view only a summary of all responses two weeks after they have submitted final grades. Instructors will not be able to view individual responses or to access any of the responses until after final grade submission. Complete information about the SOIs, including how to access the survey and a timetable for this term is available at <http://www.valdosta.edu/academic/OnlineSOIPilotProject.shtml>.

## **The Blazer Creed**

Valdosta State University is a learning environment based on trust and mutual respect in which open dialogue, vigorous debate, and the free exchange of ideas are welcome. The University is equally dedicated to the core values of community, including a commitment to practice civility, integrity, and citizenship. As members of this community, and proud Blazers, we will strive to uphold these core values for the advancement of the University.

- Civility – A Blazer shows courtesy and compassion as well as respect for the dignity of every human being.
- Integrity –Each Blazer is responsible for his or her own actions, and our community is stronger when we contemplate the context of our decisions and uphold the principles of trust and honesty.
- Citizenship – Every Blazer has an interest in the well-being of the community, and, therefore, a duty to stay informed, to make positive contributions, and to offer support to those who need help.

As a Blazer, I pledge to uphold the core principles of Civility, Integrity, and Citizenship.