Mayville State University

EDUC 484 Secondary Methods for Science

2025
Credit Hours: 3

Course and Instructor Information

Instructor Name: Jeff Hovde

Contact Information:

Office Ext.: 701-788-5291
Office: SB 144 B
Email: jeffrey.hovde@mayvillestate.edu

Hours of Availability: By appointment

Instruction Mode: Face to Face

Time: Th 9:00 a.m. All times indicated throughout this syllabus reflect Central Time (CT).

Course Materials and Technologies

None

Course Description

This course is designed to provide teacher candidates majoring in secondary science education study in discipline structures, key concepts, methodology and examination of professional standards and expectations for secondary education. Teacher candidates design and implement lessons that support student learning in a college and career ready classroom inclusive of research-based best practices. Teacher candidates will create a content-specific instructional unit and a philosophy of science education paper that demonstrate knowledge and skill sets necessary for today's secondary science education teacher. Prerequisites: EDUC 480 and Admission to Teacher Education

Course Objectives

The content covered in this course is the following:

- Basic concepts of astronomy
- Evolution of stars from creation to death
- Composition and evolution of our largest star (the sun)
- Atomic structure and light production
- Structure and function of telescopes
- Gravity's role in astronomy

Students who have completed this course should, as aligned to Composite Science Education Program Approval Standards through North Dakota's Education Standards and Practices Board (ND ESPB):

- Understand the Earth's location in the universe.
- Identify planets and stars based on characteristics and describe the conditions necessary to form them.
- Be able to explain our solar system and the associated stars and planets
- Understand the connection between matter, space, and energy.

- Identify and correctly use astronomical terminology.
- Acquire an appreciation for the timescale in which astronomical events occur.

Standards Alignment (Composite Science Education Program Approval Standards-ND ESPB):

- 13047.1 Composite Science Major/General Science The composite/general science program requires that environmental science be incorporated within other courses or as a separate course. The composite/general science program requires:1. Coursework in biology, chemistry, physics, and earth science, including: a. Minimum of twenty four semester hours in one area, b. Minimum of twelve semester hours in two other areas, c. Minimum of four semester hours in the fourth area, d. Courses must be from those that the institution allows toward graduation in the science major. 2. Study of mathematics through the pre-calculus level (college algebra and above) and statistics
- 13047.5 Skills of Teaching The program requires the candidate to demonstrate proficiency in methods of teaching science.
- 13047.6 Curriculum The program provides candidates with information necessary to identify, evaluate, and apply a coherent, focused science curriculum that is consistent with state and national standards for science education and appropriate for addressing the needs, abilities and interests of students.
- 13047.7 Assessment The program prepares candidates to use a variety of performance assessment strategies to evaluate the intellectual, social, and personal development of the learner in all aspects of science.
- 13047.8 Environment for Learning The program prepares candidates to design and manage safe and supportive learning environments in the classroom, laboratory, and field. The program reflects high expectations for the success of all students.
- 13047.9 Professional Practice The program prepares candidates to participate in the professional community, improving practice through their personal actions, education, and development. The program uses varied performance assessments of candidate's understanding and ability to apply that knowledge.

Course Expectations

Submit all assignments in Blackboard on designated due dates.

There will be NO make-up homework or tests unless I have been contacted prior to the day of the test with a valid excuse. There are very few valid excuses so do not assume that your excuse is sufficient.

Instructor/Student Communication

Students are accountable for all academic communications sent to their Mayville State University email address.

Do not email me to inform me of the grade that you need for the course.

I will reply to all student emails within 48 hours. Email is the best way to contact me.

Assignments and Assessments

All assignments are to be completed by, and only by, the person who is registered for the course.

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Evaluation and Grading

Grading Policies

I will grade all work within 1 week.

Attendance/Participation Policies

Attendance will not be graded.

Grading Scale

90 – 100%	A
80 – 89.9%	B
70 – 79.9%	C
60 – 69.9%	D

Breakdown of Grades

Quizzes 178 points
Exams 250 points
Total Points 428 points

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90 – 100%	A
80 – 89.9%	B
70 – 79.9%	C
60 – 69.9%	D

Breakdown of Grades

Total Points

Enrollment Verification

On-Campus Course Statement

The U.S. Department of Education requires instructors to conduct an activity which will validate student enrollment in this course. Class attendance will be used to verify enrollment in on-campus courses. If you do not attend, your enrollment in this course will be at risk.

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Important Student Information

In the Announcements section of the Blackboard Institution Page, you can view and download the Important Student Information document for the current academic year. It includes information about:

- ✓ Land Acknowledgement Statement
- ✓ Academic Grievance Concerns and Instructor English Proficiency
- ✓ NetTutor - Online Tutoring Program
- ✓ Starfish - Student Success System
- ✓ Students with Documented Disabilities
- ✓ Student Learning Outcomes / Essential Learning Outcomes
- ✓ Academic Honesty
- ✓ Emergency Notification
- ✓ Continuity of Academic Instruction for a Pandemic or Emergency
- ✓ Family Educational Rights and Privacy Act of 1974 (FERPA)
- ✓ Diversity Statement (Title IX)

Course Timeline/Schedule

Final Exam: none

Field Experience Expectations

- Kayla will email you once your placement has been set.
- Once Kayla lets you know that you may contact your cooperating teacher, please connect with them via email.
    1. Tell them about yourself (Hometown, background, other field experiences you've had, what are you excited to learn, etc).
    2. Give them a date/time you'd like to start and ask if that is okay.
    3. CC me on this email: jeffrey.hovde@mayvillestate.edu
- Create a "Commitment Calendar" of the days and times you will be in that classroom to complete your 30 hours. Turn in this calendar to the BlackBoard drop box and give a copy to your cooperating teacher. This is so your teacher will know well in advance the days and times you will be in their classroom. There is example of a commitment calendar below.
- Every cooperating teacher will have different expectations of their student teacher. Some will let you jump right in, and others will want you to have an observation period. Be sure to ask your cooperating teaching their preference. My preference (if your cooperating teacher allows) is:
    1. Get involved ASAP, as the teacher allows. Don't just sit in the back of the room. Move around. Help. Ask questions. Pull small groups if necessary.
    2. Spend a few hours observing, a few hours moving about the room offering help, a few hours pulling small groups, and a few hours teaching whole group
- You are required to teach TWO, back-to-back lessons to the same class.

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- You will record ONE lesson and submit the link/file to the drop box.
- Once your lesson has been placed in the drop box, reach out to me to schedule a time to "debrief."
- For ONE of your taught lessons, you will write a full MSU lesson plan.
    1. Turn this into the BlackBoard shell and Taskstream BEFORE you teach that lesson.
- Record a reflection video via FlipGrid at the end of every observation day. Each reflection must be a minimum of 3-5 minutes long. Do not include a "summary of the day." Be reflective. Consider:
    - Describe a student/teacher (you) interaction that gave you a particular insight about teaching.
    - Discuss challenges you faced today.
    - Discuss a situation that affirmed your passion for teaching.
    - Discuss something new you learned today about teaching and learning.
    - Describe the environment of the classroom (organization, routines, literacy-word walls, labeling etc., how the classroom functions).
    - Be a dedicated "kid watcher" and describe the students in the classroom (diversity, behaviors, interests, special needs, what are you noticing about the students in this classroom).
    - What techniques are effective (describe specific techniques)? Why do you feel they are effective?
    - Do you feel any of the techniques are ineffective? If so describe why.
    - What techniques are you implementing (describe specific techniques)? Are they working or not? Why?
    - What do you need to change to make these techniques effective?
    - Describe a lesson that went really well. Why did it work so well? What did you do to make the lesson so effective (describe strategies, learning styles, activities implemented, etc.)? Would you make any changes to this lesson?
    - What modifications did you have to make on lessons for students? (Reminder: not only for students on IEP's but for all students to make the lesson more effective)
    - Describe a lesson that was ineffective. Why was the lesson ineffective? What did you learn from the lesson? What changes would you implement for the next time you taught this lesson?
- Towards the end of your experience, fill out your Disposition and InTasc on Taskstream.

Example of Commitment Calendar

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NAME: JESSICA EDWARDSON
SCHOOL: PINEAPPLE PUBLIC SCHOOLS

Monday March 8th
MS/HS OBSERVATION

	CLASS	TEACHER
8:30	Geometry	Mr. Coffey
9:30	8th Math	Mrs. Donaldson
10:26	7th Math	Mr. Coffey
11:19	Algebra and Lunch	Mr. Coffey
12:59	STEM	Mr. Coffey
1:49	Algebra II	Mrs. Donaldson
2:42		
3:26		
4:00		
5:00		

Tuesday March 9th

	CLASS	TEACHER
8:00		
9:00		
10:0		
11:0		
12:0		
1:00		
2:00		
3:00		
4:00		
5:00		

Wednesday March 10th

	CLASS	TEACHER
8:00		
9:00		
10:00		
11:00		
12:00		
1:00		
2:00		
3:00		
4:00		
5:00		

Thursday March 11th
MS/HS OBSERVATION

	CLASS	TEACHER & RM NUMBER
8:30	Geometry	Mr. Coffey
9:30	8th Math	Mrs. Donaldson
10:2	7th Math	Mr. Coffey
11:1	Algebra and Lunch	Mr. Coffey
12:5	STEM	Mr. Coffey
1:49	Algebra II	Mrs. Donaldson
2:42		
3:26		
4:00		
5:00		

Friday March 12th

	CLASS	TEACHER
8:00		
9:00		
10:00		
11:00		
12:00		
1:00		
2:00		
3:00		
4:00		
5:00		

Monday March 15th
MS/HS OBSERVATION

	CLASS	TEACHER
8:30	Geometry	Mr. Coffey
9:30	8th Math	Mrs. Donaldson
10:2	7th Math	Mr. Coffey
11:1	Algebra and Lunch	Mr. Coffey
12:5	STEM	Mr. Coffey
1:49	Algebra II	Mrs. Donaldson
2:42		
3:26		
4:00		
5:00		

The above schedule and procedures in this course are subject to change with prior notice given to students in the event of extenuating circumstances.