

Science Teaching Methods 2 - Teaching of Biology/Physical Sciences
BIOS/CHEM/ENVS/GEOL/PHYS 416

Fall 2020

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Text: None

Course description: This course is preparation for teacher licensure in grades 6-12 in one or more of the fields of physical or life science: biology, physics, chemistry, earth science, environmental science, or general science. The course includes examination and analysis of modern curricula, classroom and laboratory organization, lesson planning, multicultural education, teaching science to the exceptional child, reading and the teaching of science, and methods of evaluation.

Course Goals:

- **PLANNING** – Students will demonstrate their ability to plan a sequence of multiple lessons that incorporate active student learning, scientific practices, and the Next Generation Science Standards. *Major assessments – Unit Plan and Teaching Demo Lesson Plans* (NSTA 1c, 2a, 2b, 2c, 3a, 3b, 3c, 3d; AMLE 1a, 1b, 1c, 1d, 2a, 2b, 2c)
- **INSTRUCTION** – Students will deliver a series of lessons to their peers that demonstrate appropriate scientific teaching pedagogy. These lessons will be aligned to the NGSS and demonstrate science and engineering practices. Students will critically reflect on these lessons. *Major assessments – Teaching Demos, Teaching Demo Reflections* (NSTA 2A, 2B, 2C, 3B, 3C, 3D; AMLE 4a, 4b, 4c, 4d)
- **ASSESSMENT** – Students will demonstrate the use of both formative and summative assessment strategies. Formative assessment results will be used to inform future instruction. Summative assessment will be aligned to the Next Generation Science Standards. *Major assessments – Unit Plan, Teaching Demo Lesson Plans, Teaching Demos* (NSTA 1c, 2c, 3c; AMLE 4a, 4b, 4c)
- **CLASSROOM SAFETY** – Students will demonstrate proper chemical safety, safety procedures, and ethical treatment of living organisms in the 6-12 science class. Students will perform an assessment of the safety of a 6-12 science classroom. *Major assessments – Unit Plan, Teaching Demos, Safety Survey* (NSTA 3d, 4a, 4b, 4c)
- **TECHNOLOGY** – Students will demonstrate their ability to include appropriate technology tools (both general and science-specific educational technology) into science lessons. *Major assessments – Unit Plan, Teaching Demos* (NSTA 3b; AMLE 2a, 4d)

Expectations: We will set a standard of professional behavior, including attendance, dress, participation, courtesy, and the submission of assignments by the due date are both expected and **required**. Professional demeanor, of the type that we expect in the educational workplace, is required at all times in this course. Please silence your cell phone and other electronic devices during class. If you need to check your phone, please do that during a break outside of the classroom.

Attendance: A large part of the course is based on student participation, group discussion, and peer feedback. Therefore, in order to get the most out of this class you need to attend each scheduled meeting time (Thursdays 5-7:50pm). Most meetings will be held remotely (likely through Blackboard Collaborate).

Most required assignments, readings, and other course information will be distributed through Google Classroom. A link to join the classroom will be provided. Due to some university-wide assessment requirements you may be required to submit a few assignments to Blackboard. (Remember Chalk and Wire from last semester? It's back.)

Due to current conditions (you know, the whole pandemic thing), the course format will be a bit different than how this course has been taught in the past. Most weeks will include pre-lecture videos that will introduce topics. These videos are required and must be viewed before class. Most weeks will also include discussion boards where you will be required to both make posts and respond to your classmates' posts. Our assigned class time (Thursdays 5-7:50pm, typically virtually) will mostly be spent on group discussion and group activities. I ask that you keep the assigned class time available, but I anticipate that during most weeks we won't utilize the full three hours.

I also understand that these are "unusual" times and attending class at a specific time may not always be possible. If you are unable to attend a particular class for some reason (illness, child care, family concerns, technology issues) I do ask that you inform me (preferably in advance). This is a challenging time, and I am committed to doing what I can to allow you to learn as much as you can in this course.

Rather than weekly "attendance points", we will have weekly "participation points". I envision being somewhat flexible on these participation points. If you are unable to attend the synchronous class session during a particular week, you can still earn the full participation points by being active on the discussion boards for that week (for example).

This is a new experience for me as well. I have a (rough) plan for what this semester will look like, but I am fully aware that adjustments may need to be made. We need to work together to be successful. Good communication is vital. I value your feedback and if some portion of the class isn't working for you, please let me know. *Forward, together forward*

Assignments: You will be expected to complete a number of assignments throughout the semester. The assignments have clear deadlines and must be handed in on time and by the start of class. Late assignments will only be accepted by prior agreement (i.e. before the assigned deadline) and typically with a penalty. Successful completion of certain assignments is required to pass the course. **The teacher licensure program is a standards-based program. You MUST show competency before progressing in the licensure program. Competency is a grade of C (70%) or better.** The unit plan, all lesson plans, teaching demonstration assignments, the assessment assignment, and the professional knowledge and skills assignment must receive a score of 70% or better to pass the course.

Rough points breakdown (note this is approximate and tentative!)

- Unit plan – 100pts
- Teaching demos – 50pts
- Lesson plans for teaching demos – 50pts
- Safety Survey – 20pts
- Professional Knowledge and Skills – 20pts
- Focused observations – 60pts (3 at 20pts each)
- Teaching demo reflections – 30pts (3 at 10pts each)
- Other small assignments (drafts, peer feedback, revisions, etc.) – 50pts (about 5-10pts each)
- Participation points – 45pts (3pts per week)

Grading: The grading scale used for the course will be

93-100%:	A
90-92%:	A-
87-89%:	B+
83-86%:	B
80-82%:	B-
77-79%:	C+
70-76%:	C
60-69%:	D
below 60%:	F

Course schedule: (tentative)

Date	Class Topic	Assignments Due
Week 1 Aug 27	Course intro NGSS Performance Expectations Introduce unit plan, templates, safety survey, professional knowledge and skills	
Week 2 Sep 3	3D Assessment Assessment for the NGSS	- Assessment reading - Unit plan topic due
Week 3 Sep 10	Instructional models 5E model Anchor phenomena and phenomena-based learning	- Read Chapter 7 from Methods 1 textbook - Outline of teaching demo lessons due
Week 4 Sep 17	Aligning to NGSS NGSS storylines	- Storylines reading - Unit plan draft calendar due
Week 5 Sep 24	Feedback Peer review of first demo lesson plan	- Feedback focused observation due - Draft of lesson plan for first demo due
Week 6 Oct 1	Group 1, Lesson 1 Group 2, Lesson 1	- Safety survey due - All three lesson plans due night of first demo - Self-reflection due 1 week after each demo
Week 7 Oct 8	Group 1, Lesson 2 Group 2, Lesson 2	
Week 8 Oct 15	Group 1, Lesson 3 Group 3, Lesson 1	
Week 9 Oct 22	Group 3, Lesson 2 Group 4, Lesson 1	
Week 10 Oct 29	Group 3, Lesson 3 Unit plan peer review	- Unit plan draft due
Week 11 Nov 5	Group 4, Lesson 2 Questioning focused observation discussion	- Questioning focused observation due
Week 12 Nov 12	Assessment	
Week 13 Nov 19	Classroom management panel Classroom management discussion	- Unit plan due - Classroom management focused observation due
Week 14 Nov 26	<i>No class – Thanksgiving</i>	
Week 15 Dec 3	Differentiation	- Syllabus/class rules due - Professional Knowledge and Skills assignment due
Finals Week Dec 10	edTPA reflection and peer review	

From “Protecting the Pack” document: Your health and safety are my No. 1 priority. We are all members of the Huskie community, and we owe it to each other to protect ourselves and each other. When I come to class, I’ll be wearing a face covering. I expect you to do the same. If there is some reason that isn’t possible for you, please contact me by email, and we’ll see what arrangements can be made. If you come to class in person, you’ll need to be wearing a face mask.

I also expect you to monitor your health, and you should stay home if you’ve been exposed to someone who recently tested positive for COVID-19 or if you develop any symptoms that might be related to COVID-19. You are encouraged to use the #CampusClear app to document symptoms. If you do have symptoms, stay home and contact NIU’s COVID helpline (815-753-0444) to report your symptoms and get advice.

All students must comply with the guidelines in NIU’s “Protecting the Pack” document. The university will follow all applicable local, state, and federal public health guidelines and orders.

To help keep our community healthy, students and instructors will be required to wear protective face masks in class, including when they are speaking. Students are expected to supply and maintain their own face masks.

Students who cannot wear face masks or other personal protective equipment because of a disability should proactively contact, or be referred to, the Disability Resource Center (DRC) prior to the start of the fall semester. The DRC will engage in an interactive process to determine any reasonable accommodations. Faculty may review the approved accommodation documentation that students receive from the DRC.

Students are required to follow all reasonable directives from a faculty member while in class. A student who fails to comply with a request to wear a face mask in class will be considered to have disrupted the educational environment. If a student chooses not to comply with the request, the student will be asked to leave and, ultimately, the instructor has the authority to cancel class. Purposeful non-compliance by a student can result in loss of the privilege of attending class or receiving credit in the class. Uncooperative students will be subject to the “Classroom Disruption” process articulated in the catalog’s Academic Regulations.

Please be advised that the instructor reserves the right to change aspects of this syllabus as pandemic circumstances change. This includes, but is not limited to, in-person classes going fully online, if necessary.

Accessibility: If you need an accommodation for this class, please contact the Disability Resource Center as soon as possible. The DRC coordinates accommodations for students with disabilities. It is located in the Campus Life Building, Suite 180, and can be reached at 815-753-1303 or drc@niu.edu.

Also, please contact me privately as soon as possible so we can discuss your accommodations. Please note that you will not be required to disclose your disability, only your accommodations. The sooner you let us know your needs, the sooner we can assist you in achieving your learning goals in this course.

Academic Integrity: As detailed in the current NIU undergraduate catalog: *Good academic work must be based on honesty. The attempt of any student to present as his or her own work that which he or she has not produced is regarded by the faculty and administration as a serious offense. Students are considered to have cheated if they copy the work of another during an examination or turn in a paper or an assignment written, in whole or in part, by someone else. Students are responsible for plagiarism, intentional or not, if they copy material from books, magazines, or other sources without identifying and acknowledging those sources or if they paraphrase ideas from such sources without acknowledging them. Students responsible for, or assisting others in, either cheating or plagiarism on an assignment, quiz, or examination may receive a grade of F for the course involved and may be suspended or dismissed from the university.*

*A faculty member has original jurisdiction over any instances of academic misconduct that occur in a course which the faculty member is teaching. The student shall be given the opportunity to resolve the matter in meetings with the faculty member and the department chair. If the facts of the incident are not disputed by the student, the faculty member may elect to resolve the matter at that level by levying a sanction no greater than an F for that course. The faculty member shall notify the student in writing whenever such action is taken, and the **Office of Community Standards and Student Conduct** shall receive a copy of the Academic Misconduct Incident Report indicating final disposition of the case, which will be placed in the student's judicial file. In all matters where the charge of academic misconduct is disputed by the student or if the faculty member feels a sanction greater than an F in the course is appropriate (such as repeated offenses or flagrant violations), the faculty member shall refer the matter to the Office of Community Standards and Student Conduct making use of the Academic Misconduct Incident Report. Additional sanctions greater than an F in a course can be levied only through the University Judicial System. With regards to finding the student either responsible or not responsible for his or her action, the ruling of the Judicial Hearing Board shall be binding. In cases where there is either a finding of responsibility or an admission of responsibility by the student, any recommendations by the hearing board regarding the course grade are non-binding on the instructor, who remains solely responsible for assigning a course grade, consistent with the policies set forth in the course syllabus.*