

Science Teaching Methods 2 - Teaching of Biology/Physical Sciences
BIOS 403/CHEM 495/ENVS 495/GEOL 495/PHYS 495

Fall 2019

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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 objectives:

1. **SCIENCE AND ENGINEERING PRACTICES:** The student will demonstrate a detailed knowledge of science and engineering practices by (1) constructing lesson plans for several inquiry-based lessons and (2) performing teaching demonstrations illustrating their mastery of leading an inquiry-based activity appropriate to a high school or middle school science classroom.
2. **GOALS AND OBJECTIVES:** The student will develop his/her own core subject goals and objectives for a one year long course in the life sciences or physical sciences at the high school/middle school level. In this process, students will become aware of both national and state standards for science education and demonstrate their ability to effectively address these standards in their teaching.
3. **LESSON PLAN DEVELOPMENT:** The student will demonstrate the ability to develop lesson plans that incorporate use of a variety of hand-on/minds-on instructional activities appropriate for the teaching of the life sciences or physical sciences. In this process, students will become aware of both national and state standards for science education and demonstrate their ability to effectively address these standards in their teaching.
4. **DESIGN A UNIT:** The student will develop a syllabus for teaching a typical unit for a high school/middle school course in the life sciences or physical sciences. In addition, the student will construct combined formal and informal assessments as part of the evaluation process for the class. In this process, students will become aware of both national and state standards for science education and demonstrate the ability to effectively address these standards in their teaching.
5. **PRESENT LESSONS:** The student will plan and deliver in an appropriate manner, a series of lessons appropriate for a middle/high school science classroom.

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: You are expected to attend every class, arrive to class on time, and remain for the duration. In case of emergency, please notify the instructor in writing (email is fine) with as much advance notice as possible. Failure to notify the instructors in writing of an absence will be regarded as an unexcused absence and **there will be no make-up assignments, quizzes, or tests.**

10 attendance points will be given for each class period that you *fully* attend and *fully* participate in. If you are late or have to leave early, or do not participate in class activities, only 5 points will be awarded for the class. If you are absent, zero points will be awarded for that class. There will be no make-up for lost attendance/participation points.

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. Assignments turned in **within two days of the deadline will receive half credit**. Assignments submitted after two days will not be accepted and a zero will be recorded in the grade book. 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.

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 29	Course intro NGSS Performance Expectations Introduce unit plan, templates, safety survey, professional knowledge and skills	
Week 2 Sep 5	3D Assessment Assessment for the NGSS	- Assessment reading - Unit plan topic due
Week 3 Sep 12	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 19	Aligning to NGSS NGSS storylines	- Storylines reading - Unit plan draft calendar due
Week 5 Sep 26	Feedback Peer review of first demo lesson plan	- Feedback focused observation due - Draft of lesson plan for first demo due
Week 6 Oct 3	Group 1, Lesson 1 Fire Extinguisher training	- Safety survey due - All three lesson plans due night of first demo - Self-reflection due 1 week after each demo
Week 7 Oct 10	Group 1, Lesson 2 Group 2, Lesson 1	
Week 8 Oct 17	Group 1, Lesson 3 Group 2, Lesson 2	
Week 9 Oct 24	Group 2, Lesson 3 Group 3, Lesson 1	
Week 10 Oct 31	Group 3, Lesson 2 Unit plan peer review	- Unit plan draft due
Week 11 Nov 7	Group 3, Lesson 3 Questioning focused observation discussion	- Questioning focused observation due
Week 12 Nov 14	Assessment	
Week 13 Nov 21	Classroom management panel Classroom management discussion	- Unit plan due - Classroom management focused observation due
Week 14 Nov 28	<i>No class – Thanksgiving</i>	
Week 15 Dec 5	Differentiation	- Syllabus/class rules due - Professional Knowledge and Skills assignment due
Finals Week Dec 12	edTPA reflection and peer review	

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 on the 4th floor of the Health Services Building, 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 me know your needs, the sooner I 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.*