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

Fall 2018

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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. SHARE A PHILOSOPHY OF SCIENCE EDUCATION: The student will discuss their philosophy of education including their views about teaching controversial topics, in a general high school/middle school science class.

2. INQUIRY: The student will demonstrate a detailed knowledge of inquiry in the science classroom by (1) constructing lesson plans for several inquiry lessons and (2) performing teaching demonstrations illustrating their mastery of leading an inquiry activity appropriate to a high school or middle school science classroom.

3. 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.

4. 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.

5. 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.

6. 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 all instructors 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.**

Your overall grade will be scaled by the number of absences:
0-1 absences – your grade is determined starting from 100% (i.e., no penalty)
2 absences – your grade will determined from 90% (i.e. even if you earn 100% on everything else, you will get at best an 90% (A-) in the course)
3 absences – your grade will be determined from 80%
4 absences – your grade will be determined from 70%
5 or more absences – automatically fail the course

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, and the assessment 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 30	Course intro NGSS Performance Expectations Introduce unit plan, templates, and safety survey	
Week 2 Sep 6	Instructional models 5E model Anchor phenomena and phenomena-based learning	- Read Chapter 7 from Methods 1 textbook - Unit plan topic and draft calendar due
Week 3 Sep 13	Aligning to NGSS (guest speaker) NGSS storylines Peer review of first demo lesson plan	- Storylines reading - Draft of lesson plan for first demo due
Week 4 Sep 20	Demo 1 (group 1)	- Lesson plan(s) due night of demo
Week 5 Sep 27	Demo 2 (group 1) Summative Assessment, 3D Assessment	- Self-reflection due 1 week after second demo - Assessment reading
Week 6 Oct 4	Demo 1 (group 2)	- Safety survey due
Week 7 Oct 11	Demo 2 (group 2) Unit plan peer review	- Questioning focused observation due - Unit plan draft due
Week 8 Oct 18	Demo 1 (group 3)	- Unit plan calendar due
Week 9 Oct 25	Demo 2 (group 3) Questioning focused observation discussion	- Questioning focused observation due
Week 10 Nov 1	Demo 1 (group 4)	
Week 11 Nov 8	Demo 2 (group 4) Fire Safety, Extinguisher training	
Week 12 Nov 15	Feedback focused observation discussion Assessment assignment, Part 1	- Feedback focused observation due
Week 13 Nov 22	*No class – Thanksgiving*	
Week 14 Nov 29	Classroom management panel Classroom management discussion	- Unit plan due - Classroom management focused observation due
Week 15 Dec 6	Assessment assignment, Part 2 Academic language	- Syllabus/class rules due
Finals Week Dec 13	Spare	- Assessment assignment (parts 1 and 2) due

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 (V) or drc@niu.edu.

Also, please contact me privately as soon as possible so we can discuss 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.*