AUBURN UNIVERSITY

SYLLABUS

1. Course Number: CTSE 5100/6100

Course Title: Curriculum and Teaching II: Science

Credit Hours: 4 Semester Hours (LEC 2 LAB 4)

Prerequisites: Admission to the College of Education:

Secondary Science Education Program or AUTeach

(or permission from instructor)

Corequisites: None

2. Term: Fall 2024

Day/Time: Mondays 6:00pm – 7:45pm with 4 hours of lab each week

Place: Haley 2462

Instructor: Dr. Christine Schnittka

Office Address: 3354 Haley Center

Contact Information: [schnittka@auburn.edu](mailto:schnittka@auburn.edu)

Office Hours: By appointment. Email me and we will set something up. I will generally be in my office Monday and Wednesday afternoons in case you want to stop by the AUTeach office. In case we need to have a Zoom meeting, meet me here: <https://auburn.zoom.us/my/schnittka>

**3.** Texts**: No specific text is required but joining the National Science Teaching Association is required so that access to reading materials, listserv, journals, and online PD is available. See** [**www.nsta.org**](http://www.nsta.org)**. The cost is $40. With membership you will have access to all journals and all previous journal issues.** Through NSTA, you’ll find leading resources for excellence in teaching and learning and experience growth through robust professional development. Plus, you’ll meet colleagues across all science disciplines, all grade bands and teaching stages, from the newest teacher to the veteran administrator, who share a passion for science education. You will receive a discount on all purchases from the NSTA Science Store. If you have a financial roadblock and cannot join at this time, please let me know.

This course will require the use of the learning management system, ***Canvas*** which can be accessed from the Auburn University website ([www.auburn.edu](http://www.auburn.edu)). An orientation can be provided if necessary. Ask if you need help.

1. **Course Description:**

The prospective science teacher will develop or deepen the skills of planning, teaching, management and evaluation necessary for successfully teaching diverse learners in the secondary science classroom. The course will include a hands-on lab to be undertaken in local area schools. Students will select, plan, and demonstrate various teaching strategies in the field under the guidance of mentor teachers. In addition to planning and teaching, students will apply concepts related to: alternative conceptions about science, learning in science, STEM integration, classroom management, assessment, equity, lab safety, and inquiry-based science, and argumentation

1. **Student Learning Objectives:**

These are the Alabama State Department of Education objectives we need to address in this class. Please read over them so you get a sense of where we are going.

|  |  |
| --- | --- |
| AS 1.3 | Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching 6-12 students. |
| AS 2.1 | Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science. |
| AS 2.2 | Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate. |
| AS 2.3 | Design instruction and assessment strategies that confront and address naïve concepts or preconceptions. |
| AS 3.1 | Use a variety of strategies that demonstrate the candidates’ knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students. |
| AS 3.2 | Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students. |
| AS 3.3 | Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated. |
| AS 3.4 | Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure/certification area. |
| AS 5.1 | Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected. |
| AS 5.2 | Provide data to show that 6-12 students are able to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. |
| AS 5.3 | Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner. |
| AS 6.1 | Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community. |
| AS 6.2 | Engage in professional development opportunities such as conferences, research opportunities, or projects within their community. |

1. **Course Content (subject to change!):**

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| --- | --- | --- | --- |
| Class | Date | Module Due | Topic |
| 1 | 8/19 | 0 | Orientation and overview of semester  Grading policy  Pretests  Lab Overview |
| 2 | 8/26 | 1 | Observation and Inferences.  The Demo Model (Black, 2005)  **Predictions and Hypotheses** (Scribner-MacLean, 2012; Baxter & Kurtz, 2001;  Maeng & Bell, 2013; McLaughlin, 2006)  NSTA Membership due  Name Quiz  Praxis quizzes 1 and 2 |
|  | 9/2 | 2 | Labor Day- No Class |
| 3 | 9/9 | 3 | **Lesson planning**. Planning lessons. (Wiggins & McTighe, n.d.)  **5E Learning Cycle**. (Bowen, n.d.) (Watson, 2021)  Writing objectives: (Arreola, 1998)  Context. (Mackenzie, 2021)  Journal 9/13 due on Friday this week  Praxis quiz 3 |
| 4 | 9/16 | 4 | **The Nature of Science**. (McComas 1996; McComas 2004; Clough 2011;  Schwartz 2007; Bergman, 2021; Clary & Wandersee, 2014)  Mystery Tube. Science-o-Nator. Mystery cookies.  Nature of Science reading reflection due.  Journal 9/20 due on Friday this week  Praxis quiz 4 |
| 5 | 9/23 | 5 | **Constructivism and conceptual change**. (Perkins, 1999;  Vosniadou, 2001; Colburn 2007 parts 1 and 2)  Journal 9/27 due on Friday this week  Conceptual Change assignment due.  NOS Lesson Plan 1 due  Praxis quiz 5 |
| 6 | 9/30 | 6 | **Levels of inquiry**. (Bell, Smetana, Binns, 2005; Shroat-Lewis & Hage, 2021)  Inquiry reflection due.  Four Question Strategy  Journal 10/4 due on Friday this week  Praxis quiz 6 |
| 7 | 10/7  Midterm | 7 | **Argumentation**. (Bulgren & Ellis, 2015;  Sampson, Enderle & Grooms; 2013;  Llewellyn Chapter 2; Allchin, 2023; Raven, Klein, & Namdar, 2016)  **NGSS**  Argumentation practice due  No journal due on Friday this week  Praxis quiz 7 |
| 8 | 10/14 | 8 | **MUSIC Model of Motivation** (Jones, 2009)  Journal 10/18 due on Friday this week.  Catch up on lesson planning.  Praxis quiz 8 |
| 9 | 10/21 | 9 | **Classroom Management** issues (Poon, Tan, & Tan, 2009;  Roscoe & Orr, 2010; Sterling, 2009)  Inquiry Lesson Plan due  Classroom management assignment due  Motivation assignment due  Journal 10/25 due on Friday this week  Praxis quiz 9 |
| 10 | 10/28 | 10 | **EdTPA**  Journal 11/1 due on Friday this week  Inquiry lesson plans due by end of month and inquiry reflection due after.  Praxis quiz 10 |
| 11 | 11/4 | 11 | **Assessment**  Interview a Kid due  Assessment reflection due  Journal 11/8 due on Friday this week  Praxis quiz 11 |
| 12 | 11/11 | 12 | **Engineering** in science education.  Integrated STEM education  (Schnittka, Bell & Richards, 2010)  Save the Penguins (Schnittka, 2009)  Journal 11/15 due on Friday this week  Praxis quiz 12 |
| 13 | 11/18 |  | **Teaching Evolution and other Difficult Subjects**  NSTA Position Statement  (Jensen, 2008)  Assessment Lesson Plan due  Journal 11/22 due.  Praxis quiz 13 |
| 14 | 11/25 | 13 | No class- Thanksgiving week |
|  | 12/11 | 14 | Final Exam 4:00 – 6:00 pm  Outreach documentation due  Field experiences documentation due |

**\*\*\* Always check Canvas for the current topics and assignments.**

1. **Assignments/Projects**

A. **Outreach experience** (5%)- In keeping with the outreach spirit of our university, you are required to complete a minimum of four hours of service with a school-based or campus-based science program. Some options include: COSAM outreach activities <https://www.auburn.edu/cosam/departments/outreach/> , IAMBK <https://iambkinc.org/> , Boys and Girls Club <https://www.bgcleeco.org/> , AODiscover <https://www.aodiscover.org/volunteer.html> You will type up your own documentation sheet, indicating the name of the program, the dates and times of attendance, and what you did. The coordinator or leader of the program needs to sign this document. Add these hours to your field experience document. Add the experience to your resume! Outreach documentation forms are due at the time of the Final Exam, so you have all semester, but do not put it off!

B. **Reflective journal** (5%)- Becoming a teacher involves a shift from being a learner, which you have plenty of practice with, to being a teacher. To help with that shift, we will be in discussion all semester. You will write a reflective journal entry each week, starting with the first week. Each entry should be a couple of good paragraphs, or about 300-400 words. Rather than just recounting what you did during the placement day or re-telling what you learned in class, you should pick one or more incidents or insights and *reflect* on their meaning. Reflective journals will be graded on the criteria of 1) effort, and 2) depth of reflection. Reflective journals are due each Friday at 6:00 pm on Canvas and feedback will be provided over the weekend. This is our primary way of discussing your experiences. Reflect on what you *do, think, and feel.*

C**. Lesson Plans** (20%) Three complete lesson plans will be turned in- two drafts of each. A rubric for grading lesson plans will be provided. They need to be lesson plans for lessons you PLAN to teach. I want to give you feedback on them, so there are no specific due dates for these. A week in advance is required for the first draft so there is time for feedback and revision prior to teaching. The grade on a revised lesson plan will be averaged with the grade on the PLANNED lesson plan. **If you do not have a revised lesson plan turned into me and your cooperating teacher the evening before you teach, you will not be allowed to teach it.**

D. **Reflections on Reading Assignments** (20%) Most weeks, a reflection will be required on the assigned reading either in class or for homework. If a reflection is not assigned on Canvas, assume it will be assigned in class. Directions will be provided on Canvas for each of these assignments.

E. **Final Exam** (15%.)- There will be a final exam due via Canvas on the designated final exam day for this class.

G. **Professionalism and Participation in Class and Lab** (20%). Attending class, attending lab sessions, behaving as a professional teacher in these settings is a very important aspect of this course and of being a public-facing educator. Teachers are held to a higher standard because of the power they hold over youth. You are expected to keep your cell phones out of sight during class and contribute constructively to class discussions and activities. Points will be deducted from 20 possible points for every missed class, inappropriate behavior during class, inappropriate behavior during your placement, goofing off on your phone or computer during class, inappropriate use of social media, etc. Points will be deducted as an infraction occurs. All 20 points are deducted if you are dismissed from your placement due to a serious issue.

H. **Field experiences (**15%) Field experiences in this course are linked to certification standards. You must complete a minimum of 50 field experience hours for this course and attend all lab sessions. Upload signed documentation of your field experiences. Your teaching will be evaluated when are observed. Upload any observation notes from your Cooperating Teacher. You are graded on your completing 50 hours, and also on doing well in the placement (based on feedback from cooperating teacher and observations).

**All 15 points will be deducted if you are removed from your placement at any time for unprofessional behavior.**

**8. Rubric and Grading Scale:**

Any assignment turned in late will be penalized. Late assignments turned in after the class set of assignments has been graded will not be accepted without prior approval of the instructor. Why do teachers want assignments turned in on time? Grading each set all at once adds validity and reliability to the grades you receive. Teaching is a very time constrained activity, and lessons cannot be created after they are supposed to be taught! I spent many nights and weekends getting lessons ready for Monday when I was a schoolteacher. If they weren’t ready, my life was one big mess of chaos come Monday morning.

The final grade will be determined by the following grading scale:

A = 90 -100, B = 80-89, C = 70-79, D = 65-69, F = below 65%

Note: Although it is possible to make a grade of “D” in this class, a student receiving any grade below “C” must retake the class to matriculate through the program and gain certification. Anyone who is removed from their school placement loses 35% of their grade and must repeat the class. At that point, it’s advised to drop the class.

**9. Class Policy Statements:**

A. Participation: Students are expected to participate in all class discussions and participate in all exercises. Teaching requires one to put on an extroverted persona. You may be a quiet person in your “real” life (like me), but when you are a teacher, you must be “on.”

B. Assignments: It is the student’s responsibility to contact the instructor if assignment deadlines are not going to be met. Students are responsible for initiating arrangements for missed work, if extensions are given for very difficult situations. If work is not turned in on time, points will be deducted. Showing up to your teaching job without your lesson plans ready results in CHAOS! So, you have a week to get your assignments done. Do not wait until the day before they are due. Things always seem to happen the day before something is due. Plan ahead. I’m not going to have time to chase you down and request your missing work. It’s up to you to make arrangements if needed.

C. Excused Absences: Attendance is *required* at each class meeting in this course. **If you cannot attend class, contact your instructor immediately** and explain the situation. Students are granted excused absences from class for the following reasons:  Illness of the student or serious illness of a member of the student’s immediate family, the death of a member of the student’s immediate family, trips for student organizations sponsored by an academic unit, trips for university classes or research presentations, trips for participation in intercollegiate athletic events, subpoena for a court appearance, and religious holidays.  Students who wish to have an excused absence from this class for any other reason must contact the instructor in advance of the absence to request permission. The instructor will weigh the merits of the request and render a decision. Students **must** arrange to have the class videotaped for later watching if any absence is planned. If you are ill and cannot attend class in person, or out of town on a trip, and are able to attend class on Zoom, you must notify and request this permission from the professor in advance. Unexcused absences will result in points deducted from the participation grade. Appropriate documentation for all excused absences is required. Please see the [Student Policy eHandbook](http://www.auburn.edu/student_info/student_policies/) for more information on excused absences (<http://www.auburn.edu/student_info/student_policies/>). Email documentation to your professor as soon as it is acquired.

D. Make-Up Policy: If an exam or assignment is missed, a second chance will be given only for university-approved excuses as outlined in the Student Policy Handbook [www.auburn.edu/studentpolicies](http://www.auburn.edu/studentpolicies). Arrangement to take the make-up exam or turn in assignments late must be made in advance or as soon as possible if illness occurs. Students who miss an exam or assignment because of illness need a doctor’s statement for verification of sickness and should clear the absence with the instructor the day they return to class. Late, unexcused assignments should be turned in for feedback, even when points are deducted. You want to learn, don’t you?

E. Unannounced quizzes: There may be unannounced quizzes on the reading assignments. Quiz scores will be averaged in with Reflections on Reading Assignments. Why do teachers give pop quizzes? Motivation to stay up with the readings. Life is full of pop quizzes. It’s awful to be caught unprepared in life.

F. Disability Accommodations: Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT).

G. Honesty Code: All portions of the Auburn University student academic honesty code (Title XII) found in the [*Student Policy eHandbook*](http://www.auburn.edu/student_info/student_policies/) will apply to this class.  All academic honesty violations or alleged violations of the SGA Code of Laws **will** be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee. Assignments WILL be run through the university’s plagiarism detector. I do not want to read what AI has written. If I suspect that AI has written your lesson plan or assignment, I will check it with AI detecting software. If it is flagged as probably AI, I will have a consultation with you, and ask you to re-write it. If you use someone else’s idea, cite and reference it. If you need to use someone else’s words, cite them, add a reference, and put the words in quotation marks. Plagiarism is a moral and legal minefield (Park, 2010). Plagiarism is a SERIOUS issue, and all incidents will be reported to the Office of the Provost. If you plagiarize, I can’t help you learn. My job is to help you learn. I hope you deal seriously with plagiarism with your own students someday. Don’t cheat. Don’t copy. Be honest. Have integrity. Do your own work. Neither one of us wants to deal with this. (What I put above in parentheses is a citation, and below, is a reference. Get used to doing this. Google Scholar makes it easy to copy and paste the APA reference.)

Park, C. (2003). In other (people's) words: Plagiarism by university students--literature and lessons. *Assessment & evaluation in higher education*, *28*(5), 471-488.

F. Course contingency: If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, and addendum to your syllabus and/or course assignments will replace the original materials. If class is cancelled, a notice will be sent out over Canvas, so make sure your settings route all announcements to your email.

G. Professionalism: As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College’s conceptual framework. These professional commitments or dispositions are listed and paraphrased below. See the Lab Manual for more details:

* Engage in responsible and ethical professional practices in class, in schools, and in the community. *Behave yourself in the schools, and in the community. Follow the rules. Do not break laws. Be a role model.*
* Contribute to collaborative learning communities in class and in schools. *Get along with the teachers and staff at the schools you are in. Get along with your peers in THIS class, and your professors at THIS school.*
* Demonstrate a commitment to equitable treatment in class, in schools, and in the community. *Respect each other. Celebrate our differences. Listen. Care.*
* Model and nurture intellectual vitality. *Care about learning. Show your students this! Demonstrate your curiosity!*
* Dress appropriately in school settings whether you are there as a teacher, or even just dropping something off, or only to meet with an adult. Kids see you. Be a teacher. *If you are 21, try to act and look 31*. Some of your students will be 18- remember that.
* Act like a teacher. *This is not a chance to re-live your adolescence and be popular or cool and feel the admiration of a bunch of 14 year olds.* Maybe after you get tenure you can be “the cool teacher” but not now. You have a lot to prove to parents and the school staff, and to your professor.
* Hide your Facebook, Instagram, Twitter, etc. profiles this semester. At the very least, make them NOT public. Make sure the profile photo is professional. Don’t add middle school or high school students as friends to your social networking pages. Don’t share phone numbers with them. *Be a teacher.*