**AUBURN UNIVERSITY**

**SYLLABUS**

 **1.       Course Number:          CTSE 5000/ 6000**

**Fall 2021 6-7:50 Tuesdays**

           Course Title:                 Technology and Applications in Science

           Credit Hours:                2 Semester Hours

           Prerequisites:               None

           Corequisites:                 None

 **2.        Instructors**

            Instructor: Dr. Christine Schnittka

Contact Information: schnittka@auburn.edu or (334) 844-8277

Preferred method of contact: Email
Office Hours: By appointment. I will generally be in my office Monday and Tuesday afternoons, but check with me first before you stop by. We can also arrange a Zoom conference if you need to talk.

**3.       Texts:        None required. Readings will be provided through *Canvas*.**

This course will require the use of the learning management system, ***Canvas*** which can be accessed from the Auburn University website (www.auburn.edu). An orientation can be provided if requested.

**Computer requirement:** You need a laptop computer you can bring to class (Mac or PC) and install software on for use. Please see your instructor if you do not have a laptop computer that you can bring to class and install software on. iPads or tables *may* work, but then again, they may not.

**4.          Course Description:**

This course serves as an introduction and application of current and emerging instruction and communication technologies for integration in the secondary science program.  It is an introduction to technology tools supporting inquiry, the Alabama Course of Study, the Next Generation Science Standards, and the National Science Education Standards in the secondary science classroom.

**5.         Course Objectives**

A. Facilitate and inspire student learning and creativity by providing a variety of learning environments that foster collaboration and innovative thinking to solve real world issues and authentic problems using digital tools and resources. 290-3-3-.42 (4)(b)1.

B. Design, develop, use, manage, and assess authentic digital-age learning experiences that are aligned with subject-area content and the Alabama Course of Study: Technology Education to maximize content learning and address diverse learning styles, incorporating the use of formative and summative measurement tools to better inform learning. 290-3-3-.42 (4)(b)2.

C. Model and facilitate innovative digital-age work and learning experiences through the effective use of current and emerging tools to ensure success in a global and digital world whereby the teacher and learner locate, analyze, evaluate, manage, and report information as well as communicate and collaborate online fluently using a variety of technology-based media formats. 290-3-3-.42 (4)(b)3.

D. Promote, model, and communicate the safe, legal and ethical principles of digital citizenship, equitable access, digital etiquette, and responsible online social interactions in a global culture including respect for copyright, intellectual property, the appropriate documentation of sources, and Internet user protection policies. 290-3-3-.42 (4)(b)4.

E. The role, nature, limitations, and use of media and technology for instruction and scientific investigation, including the use of virtual labs, computers, probeware, and other emerging technologies. 290-3-3-.14 (2)(e)2.(ii)

F. Engage in professional growth and leadership activities, including modeling lifelong learning by participating in face to face and online learning communities to continuously improve professional practice using existing and emerging digital tools, resources, and current research that focuses on improved student learning, as well as promotes professional development of other educators. 290-3-3-.42 (4)(b)5.

**Online Student Learning Expectations**

**All students in this course are expected to have all the equipment and software needed to be successful in the course.**

**All students are expected to contribute to their own learning as active and well-prepared participants. Weekly modules will provide various opportunities for reading, reflection, applied experiences, collaboration, and writing. You should plan on spending the same amount of preparation and “in class” time on this course as you would if you were taking the course face-to-face.**

**6.      Course Content Outline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Week # | Class Meeting | Module # for HW assigned | In-Class Activities | Homework due that day at 6:00 |
| 1 | 8/17 | 1 | **Overview of Course**Inventory of skills.Introductions.How have you seen technology change in schools?SyllabusCanvasShow how to use library to access NSTA articles**Presentation Tools**[Sway](https://sway.com/)**Collaboration Tools**[Jamboard](https://jamboard.google.com/)[PollEverywhere](https://www.polleverywhere.com/) | none |
| 2 | 8/24 | 2 | **Best practices for using PowerPoint****Google**[Google Classroom](http://classroom.google.com/)[Science Journal with Google](http://sciencejournal.withgoogle.com/)**Other Tools**[TinkerCAD](https://www.tinkercad.com/) | Make a presentation to introduce yourself. We will all look at these to study for the Name Quiz. Post URL on Canvas in Announcements. |
| 3 | 8/31 | 3 | **Observation and Inference**[windy.com](http://windy.com/)[Stellarium](http://stellarium.org/)[ExploreLearning](http://www.explorelearning.com/)[phet](http://phet.colorado.edu/en/simulations/browse)[Animal cams](https://www.earthcam.com/events/animalcams/) | Complete Google Units 1 and 2 |
| 4 | 9/7 | 4 | Discuss Tech Article in groups. Type summary into G-docName Quiz | Name QuizRead one NSTA article on technology and submit summary.Complete Google Unit 3 |
| 5 | 9/14 | 5 | *Observation and Inference mini-lessons***Inquiry**[ExploreLearning](https://www.explorelearning.com/)[Paleobiology Database](https://paleobiodb.org/#/)[PhET](https://phet.colorado.edu/)[Google Earth](https://www.google.com/earth/)Show PhET and teach a demo lessonHave Ss grade me.Show lesson plan examples. | Prepare for Observation and Inference mini-lesson.Complete Google Unit 4Excel PracticeGRAD: Article 1 due |
| 6 | 9/21 | 6 | **Flipping the Classroom**[Screencastify](https://www.screencastify.com/)[Screencast-o-matic](https://screencast-o-matic.com/)Subscribe to YouTube Channels like KurzgesagtEffective use of presentation softwareDiscuss lesson planning with technology | Complete Google Unit 5Submit name of simulationReflect on Bell & Smetana article. |
| 7 | 9/28 | 7 | **Assessment**[Kahoot](https://kahoot.com/)[Plickers](https://www.plickers.com/)[Flipgrid](https://flipgrid.com/)[ZipGrade](https://www.zipgrade.com/)[Quizlet](https://quizlet.com/)[Quizizz](https://quizizz.com/)[Socrative](https://www.socrative.com/)[Google Forms](https://docs.google.com/forms/u/0/) | Complete simulation lesson plan.Post Screencast on Google Classroom and upload to Canvas.Complete Google Unit 6 |
| 8 | 10/5 | 8 | Intro to 3D printingShow how to use TinkerCADHow to use 3D printer | Prepare to conduct a mini-assessment of your choice.Complete Google Unit 7Read article on 3D printing and watch some videos.Submit your Google Form URL |
| 9 | 10/12 | 9 | *Assessment mini-lessons* | Complete Google Unit 8 |
| 10 | 10/19 | 10 | *Simulation Presentations/Lessons*  | Present Simulation LessonStart sharing your Google FormDraw to Design Due.GRAD: Article 2 due |
| 11 | 10/26 | 11 | [PhyPhox](https://phyphox.org/)[Science Journal](https://sciencejournal.withgoogle.com/)Do probe activity and put in Excel for scientific data analysis  | Install Phyphox and Google Science NotebookComplete Google Units 9 & 10First Print due. |
| 12 | 11/2 | 12 | Excel for gradebooks and test analysisAnalyze test data. | Complete Google Units 11 and 12Thingiverse Thing due.Turn in Excel data analysis |
| 13 | 11/9 | 13 | **Communication**Show teacher portfolio examplesLearning Management Systems[Remind](https://www.remind.com/)[Google Hangouts](https://hangouts.google.com/) | Design a Thing due Complete Google Unit 13Start Portfolio. Submit URL |
| 14 | 11/16 | 14 | **Mindmapping Tools**[Popplet](http://popplet.com/)[Bubbl.us](file:///Users/cgs0013/Dropbox/AU%20Courses/CTSE%205000%3A6000/Bubbl.us)**Gamification**Send students to **login.legendsoflearning.com**and give them your teacher code: **SCHNI4** | Thing due |
|  | 11/23 |  | Thanksgiving Break |  |
| 15 | 11/30 | 15 | **Creativity**[WeVideo](https://www.wevideo.com/)[Soundtrap](https://www.soundtrap.com/)[Bookcreator.com](http://www.bookcreator.com/) M2T7XV | Take Google Educator ExamGRAD: Article 3 dueBring Thing to class. |
| 16 | 12/6 by 9:30pm | 16 | Submit Screencasted lesson and Teacher Portfolio and pass Google Exam. | Pass Google Level 1 Certified Educator Test. Upload your Screencast URL.Teacher Portfolio due. |

**7. Additional Course Requirements for CTSE 6000 (Graduate Students in the MS or PhD or Traditional MEd)**

 Graduate Students- Three research journal article reviews about educational technology:

 30 points

8. **Grading**

**Undergrads**

**Professionalism/Participation 10%**

**Class activities 10%**

**Reading and other assignments 50%**

**Final exam 20%**

**Google Certification 10%**

**For graduate students, teaching lesson will be averaged in with Class Activities, and article reviews will be averaged in with Assigned Readings.**

A = 90% or higher

B = 80% - 89%

C = 70% - 79%

D = 65% - 69%

F = below 65%

Any assignment presented or turned in late will be penalized 10% for each day late. Late assignments presented or turned in late after two days (after 6pm Thursdays) will not be accepted without prior approval of the instructor.

AU eValuate Fall Semester evaluation dates: Sunday, December 5th

Extra Credit if evidence of completing AU eValuate for course is submitted (screenshot end of survey)

**8.   Class Policy Statements:**

Participation:  Students are expected to attend class, bring required materials, and participate in all class discussions and participate in all activities.  It is the student’s responsibility to contact the instructor if assignment deadlines are not met.  Students are responsible for initiating arrangements for missed work. Non-class activities on computers, phones, or laptops will result in deductions from the participation grade.

Attendance/Absences:  Attendance is required at each class meeting.  Contact the instructor as soon as you know that you have to miss class for any reason. If an exam is missed, a make-up exam 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 must be made in advance.  Students who miss an exam 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.  All absences must be documented and cleared with the instructor **in advance**. All work missed, even class work, will need to be made up and turned in within one week. Homework is always due on the due-date, even if class is missed. Do not wait until the night before class to complete your assignments!

Unannounced quizzes:  There may be unannounced quizzes covering assigned readings.

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).

Honesty Code:  The University Academic Honesty Code and the Student Policy Handbook Rules and Regulations pertaining to Cheating will apply to this class. All work must be original. All infractions of the Academic Honesty Code will be reported to the Provost. (Note: All written work will be scanned for plagiarism. Be sure you know what plagiarism is.) Cheating will likely result in dismissal from the Teacher Education Program, and may result in dismissal from the university.

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 below:

* Engage in responsible and ethical professional practices
* Contribute to collaborative learning communities
* Demonstrate a commitment to diversity
* Model and nurture intellectual vitality
* Be kind

**Course Contingency:** If normal class 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, an addendum to your syllabus and/or course assignments will replace the original materials.

**9. Justification for offering CTSE 6000 as a graduate course:**

This course is designed to give the beginning teacher practical experience learning about and using educational technology to teach science. However, it gives the more advanced learner experience reviewing research related to the use of educational technology, and the opportunity to reflect upon his or her own teaching practice and analyze student results. The extra assignments for graduate students scaffolds them in the process of reading literature, carrying out a lesson with educational technology, collecting student data and analyzing the results. The graduate student will complete the course not only with the basic knowledge of implementing technology tools in the classroom, but with the more advanced application of reading, analyzing, and conducting research.

**10**. Covid-19:

Due to the Coronavirus pandemic, public health measures have been implemented across Auburn’s campus. Students should stay current with these practices and expectations through the campus reentry plan, A Healthier U. The sections below provide expectations and conduct related to COVID-19 issues.

Health and Participation in Class

Your health and safety, and the health and safety of your peers, are my top priorities. If you are experiencing any symptoms of COVID-19, or if you discover that you have been in close contact with others who have symptoms or who have tested positive, please let me know. My hope is that if you are feeling ill or if you have been exposed to someone with the virus, you will stay home to protect others. Please do the following in the event of an illness or COVID-related absence:

● Notify me in advance of your absence, if possible

● Provide me with medical documentation, if possible

● Keep up with coursework as much as possible

● Participate in class activities and submit assignments remotely as much as possible

● Notify me if you require a modification to the deadline of an assignment or exam

● Finally, if remaining in a class and fulfilling the necessary requirements becomes impossible due to illness or other COVID-related issues, please let me know as soon as possible so we can discuss your options.

Students with questions about COVID-related illnesses should reach out to the COVID Resource Center at (334) 844-6000 or at covidresourcecenter@auburn.edu.

Health and Well-Being Resources

These are difficult times, and academic and personal stress is a natural result. Everyone is encouraged to take care of themselves and their peers. If you need additional support, there are several resources on campus to assist you:

● COVID Resource Center (covidresourcecenter@auburn.edu)

● Student Counseling and Psychological Services (<http://wp.auburn.edu/scs/>)

● AU Medical Clinic (<https://cws.auburn.edu/aumc/>

● If you or someone you know are experiencing food, housing or financial insecurity, please visit the Auburn Cares Office (<http://aucares.auburn.edu/>)

A Healthier U Campus Community Expectations

We are all responsible for protecting ourselves and our community. Please read about student expectations for fall semester. You are expected to pay attention to your health and protect it.

Course Expectations Related to COVID-19:

● Face Coverings: As a member of the Auburn University academic community you are required to follow all university guidelines for personal safety with face coverings, physical distancing, and sanitation. Face coverings are required in this class and in all campus buildings. Note that face coverings must meet safety specifications, be worn correctly, and be socially appropriate. You are required to wear your face coverings at all times. If you remove your face covering or are non-compliant with the university’s policy on face coverings, you will be instructed to leave the classroom and will be held to the protocols outlined in the Auburn University Policy on Classroom Behavior. Any student who willfully refuses to wear a face covering and does not have a noted accommodation may be subject to disciplinary action.

● Physical Distancing: Students should observe appropriate physical distancing and follow all classroom signage/avoid congregating around doorways before or after class. If the instructional space has designated entrance and exit doors, you should use them. Students should exit the instructional space immediately after the end of instruction to help ensure social distancing and allow for the persons attending the next scheduled class session to enter.

● Course Attendance: If you are quarantined or otherwise need to miss class because you have been advised that you may have been exposed to COVID-19, you will be expected to develop a plan to keep up with your coursework during any such absences.

● Course Meeting Schedule: This course might not have a traditional meeting schedule in Fall 2021. Be sure to pay attention to any updates to the course schedule as the information in this syllabus may have changed. Please discuss any questions you have with me.

● Technology Requirements: This course may require particular technologies to complete coursework. If you need access to additional technological support, please contact the AU Bookstore at aubookstore@auburn.edu.

Disruptive or concerning classroom behavior involving the failure to wear a face covering, as directed by Auburn University, represents a potential Code of Student Conduct violation and may be reported as a non-academic violation. Please consult the Classroom Behavior Policy.

Course Delivery Changes Related to COVID-19

Please be aware that the situation regarding COVID-19 is frequently changing, and the delivery mode of this course may adjust accordingly. In the event that the delivery method is altered, please be assured that the learning goals and outcomes of the course will not change; however, some aspects of the course will change in terms of the mode of delivery, participation, and testing methods. Those details will be shared via Canvas as soon as possible. Please be prepared for this contingency by ensuring that you have access to a computer and reliable Internet.