Greenwood, Amy

P-I-E Model of Instruction

Project Plan

Overview:

- **Learner Group:** Post-secondary community college students taking a STEM elective course as a credit toward the science requirements. This course is limited to 20 students.
- **Course Type:** Bichronous.

  STEM Fusion: Interdisciplinary Innovations in Science and Technology

  The course will be accessed online and students can use the computers on-campus in the computer lab/media center/library or off-campus during the scheduled synchronous time. There are on-campus resources for students with limited access to technology, tools, devices, and supplies. Students can work on the asynchronous activities at the on-campus Makerspace, off-campus, or a community Makerspace. The course fees cover activity supplies and can be picked up at the college Makerspace.
- **Course Duration:** 14 weeks. (1 semester)
- **Weekly Time Expectation:** 90 min on Tuesdays and Thursdays (synchronous lecture and small group discussions) and approximately 2.5 hours of asynchronous activities.
  - Google Classroom Student Link: https://classroom.google.com/c/Njc3OTc4NjU4MzM1?cjc=g3ts3vy
  - Google Classroom Teacher Link: (add after submission hugh.kellam@uta.edu)
- **References**

Moorhouse, B. L., & Wong, K. M. (2021). Blending asynchronous and synchronous digital technologies and instructional approaches to facilitate remote learning. *Journal of Computers in Education, 9*(1), 51-70.

Martin, F., & Bolliger, D. U. (2022). Designing Online Learning in Higher Education. Handbook of Open, *Distance and Digital Education*, 1-20.

Martin, F., Polly, D., & Ritzhaupt, A. (2020, September 8). Bichronous Online Learning: Blending Asynchronous and Synchronous Online Learning. EDUCAUSE Review. Retrieved from https://er.educause.edu/articles/2020/9/bichronous-online-learning-blending-asynchronous-and-synchronous-online-learning

P-I-E Model Alignment

Teacher Presence:

1. Regularly participate in discussions: During synchronous breakout rooms rotate through the small groups to observe, ask, and answer questions or guide the discussion.

2. Host live virtual sessions (other than the scheduled synchronous lecture): Meet with small groups via Google Meet or Duo to discuss or model a hands-on activity, answer questions, and facilitate group discussions and planning.

3. Provide video activity demos: Record and share a video where you model at least one way to start a particular STEM activity and provide additional insights and examples to enhance student understanding and engagement.

4. Personalize presentations and lectures: Share relevant personal experiences, anecdotes, or examples during lectures and discussions to illustrate key concepts, make connections to real-world applications, and demonstrate your passion for the subject matter.

5. Recognizing diversity in the classroom: Encouraging students to post a video or slide deck introducing themselves to the class and using instructional materials, such as videos, that reflect different cultures and viewpoints.

Inclusion and Differentiation:

1. Create materials to meet learning differences: Incorporate a variety of learning materials, such as text, images, videos, and interactive activities, to accommodate different learning preferences and ensure inclusivity for all students.

2. Flexible Assignment Options: Provide students with a choice of assignment options to accommodate diverse learning styles, interests, and abilities, allowing them to demonstrate their understanding and creativity in ways that resonate with them personally.

3. Use universal design principles: Design course materials and activities to ensure accessibility and usability for all students, including those with disabilities or diverse learning needs such as ADHD and dyslexia.

4. Offer peer learning opportunities: Encourage peer-to-peer collaboration and learning through group projects, peer review activities, and collaborative discussions, fostering a sense of community and shared responsibility for learning outcomes.

5. Set reasonable goals and offer time management coaching: Each week, review the amount of time needed to plan, practice, create, and document the STEM activity or project as well as provide opportunities for revision.

Instructional Design:

1. Organize course content: Organize course content into clear modules or units with logical sequencing and consistent navigation to help students locate and access relevant materials easily.

2. Use multimedia and interactive elements: Incorporate multimedia elements, interactive simulations, and engaging activities to enhance student engagement and facilitate deeper understanding of course concepts and topics.

3. Align learning objectives and assessments: Ensure that learning objectives are clearly stated and aligned with assessments and activities, providing students with a clear understanding of what is expected of them and how their learning will be evaluated.

4. Provide clear instructions: Provide clear and detailed instructions for assignments, activities, and assessments, including grading criteria and deadlines, to help students understand expectations and complete tasks.

5. Offer scaffolded learning opportunities: Scaffold learning experiences by breaking complex tasks or concepts into smaller, manageable steps and providing guidance and support as students' progress through the learning process.

Evaluation and Feedback:

1. Provide timely feedback: Establish a timeline for providing feedback on assignments, quizzes, and exams, ensuring that students receive timely and constructive feedback to guide their learning and improvement.

2. Use rubrics for assessments: Develop and share rubrics with students outlining grading criteria and expectations for assessments, providing transparency and consistency in the evaluation process and helping students understand how their work will be assessed.

3. Offer formative assessment opportunities: Incorporate formative assessment activities, such as quizzes, polls, and low-stakes assignments, throughout the course to monitor student progress, identify areas of difficulty, and provide targeted feedback for improvement.

4. Encourage self-assessment and reflection: Encourage students to engage in self-assessment and reflection on their learning progress and outcomes, prompting them to identify strengths, weaknesses, and areas for growth, and setting goals for improvement. Encourage students to create a portfolio or blog page to document their success, goals, and reflections.

5. Provide opportunities for revision: Allow students an opportunity to revise and resubmit assignments based on feedback provided, promoting a growth mindset and allowing them to demonstrate their learning over time.

Facilitation Tools

Communication Plan Artifact – Introductory Video Link
https://www.canva.com/design/DAGEbFQOR8E/ax3WSPMPW0tHKx4uMWo_9w/edit?utm_content=DAGEbFQOR8E&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

1. Introductory video and course tour.
    a. Canva Present and Screencastify
2. Weekly course videos
    a. Synchronous video recordings are accessible to students who miss class or need to review. They are posted daily with a Google Meet link in Google Classroom.
    b. Additional videos to guide students through activities are released with course content on Tuesday at 12:01 am.
3. Announcements
    a. Google Classroom
4. Lectures
    a. Synchronous on Google Meet
5. Discussion forums
    a. Google Classroom
6. Office hours and small group facilitation
    a. Synchronous on Google Meet

Online Etiquette Guidelines Artifact: Canva Slide Decks

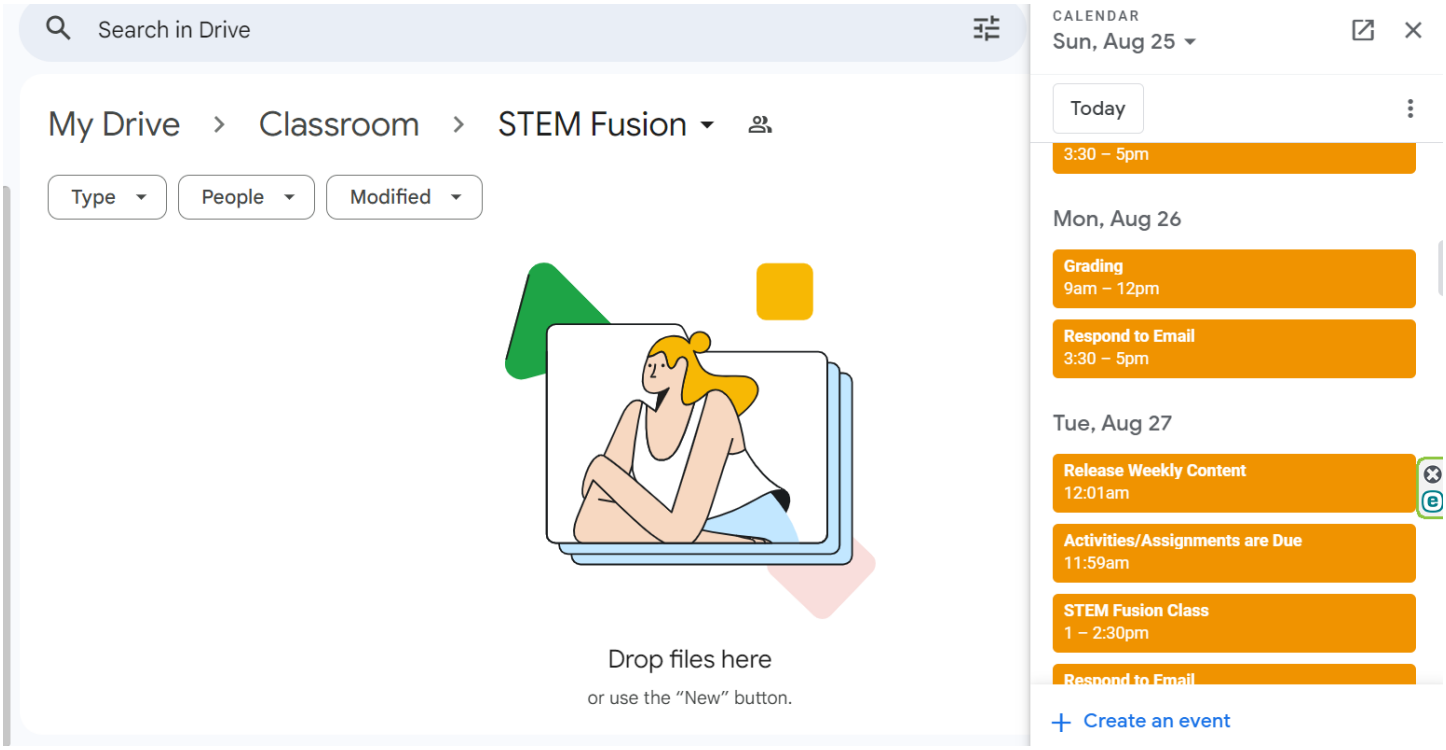
Video Conferencing:
https://www.canva.com/design/DAGEa7jU0j0/INjEfiIbPvu6YJN_1GhphQ/edit?utm_content=DAGEa7jU0j0&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

Discussion Forums:
https://www.canva.com/design/DAGEbOIBt5w/lxB55DI9RdF1DCsrDP6PlQ/edit?utm_content=DAGEbOIBt5w&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton

Weekly Teaching Schedule Artifact:

Shared through Google Drive https://drive.google.com/drive/folders/1md4OTTVx6-S_MvJxcmWRApol0kIlSO_C2N6mRt8iXY_7hdMSprEonWFTZTiC4MVAeDPHUVdc?usp=sharing

Screenshot



My Drive>Classroom>Calendar

1. **Create videos:** Slide decks are created on Fridays before the Tues/Thurs lectures and synchronous lecture videos are recorded and posted in Google Classroom at 3:30 on Tuesdays and Thursdays.
2. **Release content:** Activities/Assignments/Slide Decks are auto-released on Tuesdays at 12:01 am and discussion questions are released on Thursdays at 12:01 am.
3. **Respond to emails:** 3:30-5 pm. M-F and Sunday.
4. **Respond to discussion forum posts:** Wed-Fri 9-10:30 am the following week.
5. **Host virtual office hours:** Wed 4-6 pm and Friday 4-6 pm
6. **Assignments are graded** Mondays 9-12 and 2-3:30 as needed.
   Note: Assignments/Activities are due by 11:59 pm on Tuesdays, 1 week after they are posted. Discussion posts are due at 11:59 pm on Thursdays, 1 week after they are posted.
7. **Teach synchronous sessions:** Tuesday and Thursday 1-2:30 pm.