

IDE 405: Digital Pedagogies and Assistive Technology

Faculty Advisor

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Meeting Day/ Time:

Mode: In-person

Day & Time: Thursday between 5:00 pm – 7:45 pm (ET)

Venue: Huntington Hall 105

COURSE DESCRIPTION

This course explores digital pedagogies and assistive technologies in K-12 education through practice-informed Course-based Undergraduate Research Experience (CURE). Students (PreK-12 teachers) will gain theoretical knowledge and practical skills to design inclusive, technology-enhanced learning environments. Students will explore several emerging and assistive technology tools and their classroom applications by designing accessible learning experiences.

The course will help students build meaningful connections among their knowledge of the subject matter, pedagogical knowledge, and technological knowledge to develop an understanding of the concept of technology integration and bring relevance to the how and why of technology integration into instruction. Students draw on their student teaching or school placement experiences to identify authentic classroom challenges related to technology integration and inclusive learning. Using these real-world insights, students engage in a structured inquiry process that includes:

- a. Problem identification (from field experience)
- b. Targeted literature review
- c. Design of technology-supported instructional intervention
- d. Peer-based pilot testing (within university classroom setting, IRB*)
- e. Data-informed reflection and iteration.

CURE FRAMEWORK IN THIS COURSE:

This course incorporates core CURE elements:

- **Discovery:** Students investigate real, field-derived problems
- **Relevance:** Problems originate from actual classroom experiences
- **Scholarly Practice:** Literature review, design, testing, analysis
- **Iteration:** Prototype → feedback → refinement cycles
- **Collaboration:** Peer testing and group design
- **Reflection:** Ongoing professional and metacognitive development

ETHICAL & IRB GUIDELINES:

To ensure ethical compliance

Student **may**:

- Use field experience only to identify problems
- Conduct pilot testing with peers (pre-service students)
- Use simulated teaching environments
- Collect low-risk data (surveys, usability feedback, observations only)

Students **may NOT**:

- Collect data from K-12 students
- Conduct research in schools
- Gather identifiable or sensitive data

PREREQUISITE/CO-REQUISITE: None

INTENDED AUDIENCE

- This course is designed for pre-service and in-service teachers, and students who are interested in technologies in educational settings, especially in PreK-12 schools.

CREDITS

- 3 -credits

TECHNOLOGY REQUIREMENTS:

All students are expected to bring their laptop computer to every class session. Laptops are available for borrowing from the School of Education Helpdesk (help@syr.edu or 315.443.2677).

LEARNING OBJECTIVES

After taking this course, students will be able to:

1. Identify authentic instructional challenges from field experience
2. Conduct focused literature reviews to inform design decisions
3. Evaluate digital and assistive technologies for accessibility and pedagogy
4. Design inclusive, technology-enhanced learning interventions
5. Pilot and evaluate interventions using peer-based testing
6. Analyze small-scale data and feedback
7. Engage in iterative design improvement
8. Reflect on their development as a teacher-designers and emerging researchers

COURSE STRUCTURE (Integrated to existing design)

Phase 1: Exploration (Mini Projects 1-2)

- Learn tools + identify field-based problem

Phase 2: Inquiry (Mini Project 3 – 4)

- Analyze tools, case studies, and literature

Phase 3: Design (Mini Project 5 – 6)

- Develop intervention aligned to problem

Phase 4: Pilot & Iterate (Mini Project 3 – 4)

- Test with peers → collect data → refine

Phase 5: Iteration

- Revise based on evidence

Reflection Papers

Reflection 1 (Beginning):

Identify a real classroom challenge from student teaching

Reflection 2 (End):

Reflect on design, testing, and learning as researcher

SHARED COMPETENCIES

In IDE405 course, students will develop knowledge, skills and ability to effectively integrate digital tools and platforms to enhance teaching and learning across diverse educational contexts. They will acquire knowledge and practical skills in selecting and applying relevant technologies to design inclusive learning experiences within the K12 contexts. The course emphasizes the development and adaptation of instructional materials grounded in principles of instructional design theories and practices (i.e., Cognitive Theory Multimedia Learning, Universal Design for Learning so on), leveraging technology to foster engagement, accessibility, and instructional effectiveness. Students will cultivate critical evaluation skills that allows them to assess the efficacy of digital pedagogies and assistive technologies and make informed, evidence-based decisions to optimize learning outcomes. Additionally, the course fosters ethical and professional practices, promoting responsible, collaborative, and accessible use of technology while upholding standards of privacy and professional communication.

TEXTS/SUPPLIES – REQUIRED:

NOTE: All required reading materials, NYS Learning Standards, and other resources will be posted on Blackboard Ultra.

COURSE REQUIREMENTS AND EXPECTATIONS:

All students need to fulfill the requirements listed below. Each requirement is described further on the following pages and in the documents provided in class.

Assignment	Description
Class participation	<i>Pre-Course Surveys</i> Participate in Technology Use Survey for Students, via the Blackboard course site in the pre-course work folder under the assignment Dropbox section. The survey takes approximately 20 minutes to complete and will help us better understand your technology habits, design Instructional activities that accommodate your learning needs, and give you experience using an online survey tool.

Assignment	Description
	<p>Attendance Regular attendance is mandatory. More than two unexcused absences will affect the final grade.</p> <p>In-Class Participation At instructors' discretion, based on your: completing every activity each week, even if it is ungraded; reading and reflecting on the assigned reading materials in class; participating and contributing during group activities; participating in class discussions by raising questions and responding to other people's questions.</p> <p>Readings Completion of assigned reading materials before in-person sessions and participation in the related in-person or online discussion activity.</p> <p>Reflections: Students are required to submit two reflection papers (500 to 800 words each): one at the beginning and one at the end of the course. The first paper will outline initial expectations and goals, while the second will critically reflect on the learning experience throughout this course.</p> <p>Assignments: Timely submission of all assignments, completion of individual and group projects, and adherence to project guidelines and timelines.</p> <p>Mini-Project Students are expected to be independently or in pairs to carry out a series of mini-projects that involve designing and implementing solutions using the relevant technologies within K12 classroom settings. These projects aim to help learners build hands-on experience and demonstrate their understanding of key concepts, pedagogy and technology use. Each mini project will focus on solving a specific problem, encouraging creativity and individual exploration of technology.</p> <p>Final Group Project/Presentation For the final group project, learners will collaborate in pairs to design and develop a comprehensive solution or product using the technologies and skills acquired throughout the course. Presentations will be conducted in pairs, with four presentations scheduled per week. Each presentation will last 30 minutes and will be assessed using a standardized rubric, including 10 points from peer assessment and 10 points from the facilitator.</p>
<p>In-Class Mini Projects (Individual task)</p>	<p>A few specific technologies will be introduced in the context of integrating technology into teaching, and you will have the opportunity to work on hands-on activities in class to develop technology-based tools or resources for use in PreK-12 classrooms. Specific instructions on these mini projects will be provided in class.</p> <p>Mini Project 1: Presenting content via MS PowerPoint, Google Slides or any other presentation tool and website evaluation (<i>problem exploration + accessibility awareness</i>) Mini Project 2: Assistive Technologies & UDL (<i>understanding learner needs</i>) Mini Project 3: Game-Based Learning & Assessment (<i>tool evaluation & adaptation</i>) Mini Project 4: Immersive Technologies: VR/AR (<i>innovation exploration</i>) Mini Project 5: Cybersecurity and Social/Legal/Cultural Issues (<i>contextual constraints</i>) Mini Project 6: Using AI tools in classrooms (<i>design enhancement</i>)</p> <p>NOTE:</p>

Assignment	Description
	<p>Each mini-project must explicitly address one of the following K-12 grade bands:</p> <ul style="list-style-type: none"> • Early primary (K – 2) • Upper primary (Grades 3 – 5) • Middle School (Grades 6 – 8) • High School (Grades 9 – 12) <p>Justification: Each submission must include a brief rationale (2 – 3 sentences) briefly explain the appropriateness of the chosen tool or activity for the selected grade band, with reference to development, Cognitive, or social-emotional needs and tied of research problem.</p> <p>Grade Band Variation: Across 6 mini-projects, students must design at least three different grade bands to demonstrate range and adaptability in applying inclusive digital pedagogy.</p>
<p>Group Course Project (Final Project)</p>	<p>Final Project (CURE DESIGN)</p> <p>Step 1: Problem Identification</p> <ul style="list-style-type: none"> • Derived from student teaching experience <p>Step 2: Literature-informed design</p> <ul style="list-style-type: none"> • Use research to justify approach <p>Step 3: Intervention Development</p> <ul style="list-style-type: none"> • Lesson + technology integration <p>Step 4: Peer Pilot Testing</p> <ul style="list-style-type: none"> • Teach lesson to classmates • Collect: feedback surveys; observation notes; <p>Step 5: Analysis & Iteration</p> <ul style="list-style-type: none"> • What worked? What didn't? Why? <p>Final Project Deliverables</p> <p>1. Statement of intent</p> <ul style="list-style-type: none"> • Field-based problem • Research question • Target learners • Literature-informed rationale <p>2. Final Presentations</p> <ul style="list-style-type: none"> • Teaching + pilot testing component • Peer participation • Data Collection during session (observations; field notes) <p>3. Field Report</p> <ul style="list-style-type: none"> • Problem & context (from field experience) • Literature-informed design • Intervention description

Assignment	Description
	<ul style="list-style-type: none"> • Pilot testing method (peer-based) • Findings (feedback/data) • Iteration & improvements • Reflection <p>4. Individual Reflection</p> <ul style="list-style-type: none"> • Growth as teacher-designer • Use of evidence in decision-making • Insights from testing <p>Data Collection Methods: Students may use:</p> <ul style="list-style-type: none"> • Google forms surveys • Peer feedback rubrics • Observation Checklists • Exit tickets • Reflection responses

Time Bank:

Students enrolled in IDE405 will have access to a Time Bank to help manage unforeseen challenges or workload demands during the semester. Each student may utilize the Time Bank three times over the semester, with each use granting an additional 24 hours to complete and submit a weekly assignment. This policy is intended to provide flexibility while fostering accountability and effective time management. To utilize the Time Bank, students must inform the instructor before the original deadline.

Grading Criteria:

Component	Points	CURE Alignment
Participation & Engagement	30	Collaboration
Readings	20	Inquiry foundation
Reflections	30	Structured reflection
Mini-projects	60	Research scaffolding
Final Project	50	Full CURE cycle
Self-Assessment	10	Identity development

NOTE: The total course points, originally set at 200, will be scaled down to a maximum of 100 points upon final calculation.

Grading Table:

Grade	Value
A	93-100
A-	90-92
B+	87-90
B	84-86
B-	80-83

C	77-79
C-	74-76
D	70-73
D	60-69
F	<60 or below

** Instructors reserve the right to downgrade or upgrade final scores based on student attendance, attitude, level of participation, etc. that reflect professional preparation. Grading issues are discussed ONLY in person.*

University Attendance Policy

Attendance in classes is expected in all courses at Syracuse University. Students are expected to arrive on campus in time to attend the first meeting of all classes for which they are registered. Students who do not attend classes starting with the first scheduled meeting may be academically withdrawn as not making progress toward a degree by failure to attend. Instructors set course-specific policies for absences from scheduled class meetings in their syllabi.

It is a federal requirement that students who do not attend or cease to attend a class to be reported at the time of determination by the faculty. Faculty should use “ESPR” and “MSPR” in Orange Success to alert the Office of the Registrar and the Office of Financial Aid. A grade of NA is posted to any student for whom the Never Attended flag is raised in Orange SSuccess. More information regarding Orange SSuccess can be found [here](http://orangesuccess.syr.edu/getting-started-2/), at <http://orangesuccess.syr.edu/getting-started-2/>.

Students should also review the University’s religious observance policy and make the required arrangements at the beginning of each semester.

Syracuse University Policies

Syracuse University has a variety of other policies designed to guarantee that students live and study in a community respectful of their needs and those of fellow students. These policies will be posted to the course Blackboard site.

Diversity and Disability

Ensuring that students are aware of their rights and responsibilities in a diverse, inclusive, accessible, bias-free campus community can be found here, at: <https://www.syracuse.edu/about/diversity-equity-inclusion/>.

Religious Observances Notification and Policy (Fall '24 deadline Sept 16)

Syracuse University’s Religious Observances Policy (<https://policies.syr.edu/policies/university-governance-ethics-integrity-and-legal-compliance/religious-observances-policy>) recognizes the diversity of faiths represented in the campus community and protects the rights of students, faculty, and staff to observe religious holy days according to their traditions. Under the policy, students are given an opportunity to make up any examination, study, or work requirements that may be missed due to religious observance, provided they notify their instructors no later than the academic drop deadline. For observances occurring before the drop deadline, notification is required at least two academic days in advance. Students may enter their observances in MySlice under Student Services/Enrollment/My Religious Observances/Add a Notification.

Orange SSuccess (tools to access a variety of SU resources, including ways to communicate with advisors and faculty members) can be found here, at: <http://orangesuccess.syr.edu/getting-started-2/>

Disability-Related Accommodations:

Syracuse University values diversity and inclusion; we are committed to a climate of mutual respect and full participation. There may be aspects of the instruction or design of this course that result in barriers to your inclusion and full participation in this course. I invite any student to meet with me to discuss strategies and/or

accommodations (academic adjustments) that may be essential to your success and to collaborate with the Center for Disability Resources (CDR) in this process. If you would like to discuss disability-accommodations or register with CDR, please visit Center for Disability Resources. Please call (315) 443-4498 or email disabilityresources@syr.edu for more detailed information. CDR is responsible for coordinating disability the Centered academic accommodations and will work with the student to develop an access plan. Since academic accommodations may require early planning and generally are not provided retroactively, please contact CDR as soon as possible to begin this process.

Academic Integrity

As a pre-eminent and inclusive student-focused research institution, Syracuse University considers academic integrity at the forefront of learning, serving as a core value and guiding pillar of education. Syracuse University's Academic Integrity Policy provides students with the necessary guidelines to complete academic work with integrity throughout their studies. Students are required to uphold both course-specific and university-wide academic integrity expectations such as crediting your sources, doing your own work, communicating honestly, and supporting academic integrity. The full Syracuse University Academic Integrity Policy can be found by visiting class.syr.edu, selecting, "Academic Integrity," and "Expectations and Policy."

Upholding Academic Integrity includes the protection of faculty's intellectual property. Students should not upload, distribute, or share instructors' course materials, including presentations, assignments, exams, or other evaluative materials without permission. Using websites that charge fees or require uploading of course material (e.g., Chegg, Course Hero) to obtain exam solutions or assignments completed by others, which are then presented as your own violates academic integrity expectations in this course and may be classified as a Level 3 violation. All academic integrity expectations that apply to in-person assignments, quizzes, and exams also apply online.

Students found in violation of the policy are subject to grade sanctions determined by the course instructor and non-grade sanctions determined by the School or College where the course is offered. Students may not drop or withdraw from courses in which they face a suspected violation. Any established violation in this course may result in course failure regardless of violation level.

Artificial Intelligence

Open Artificial Intelligence use

Based on the assignments in this course and our specified learning outcomes, the full use of artificial intelligence as a tool, with disclosure and citation, is permitted in this course. Students do not need to ask permission to use these tools before starting an assignment or exam, but they must explicitly and fully indicate which tools were used and describe how they were used.

Tentative Course Schedule

Note: Mini project submissions are due every **Sunday at 10:00 PM (ET)**, and feedback will be provided before the next class on **Thursday**. The checklist/rubric is outlined for each of the Mini-Project and Final Project

Week	CURE Phase	Assignment / Mini Project	CURE Purpose	Description (Reframed)	Skills Targeted	Tools
Week 0	P1	Pre-Course Survey + Reflection 1	Problem Identification	Identify a real classroom challenge from student teaching; baseline self-assessment	Reflection, problem framing	Microsoft Forms
Week 1	P1	Mini Project 1: Accessible Content + Website Eval	Problem Exploration	Design content addressing your identified problem; evaluate accessibility of a related website	Learning objectives, accessibility, content design	PowerPoint, Google Slides, Canva, WAVE
Week 2	P1→P2	Digital Storytelling + Final Project Prep 1	Context Building	Create a short instructional artifact tied to your problem; define outcomes & assessments	Multimedia learning, instructional planning	Audacity, GarageBand, Adobe Express
Week 3	P2	AI Tools Exploration	Inquiry	Evaluate AI tools supporting your intervention; justify selection	Tool evaluation, differentiation	ChatGPT, MagicSchool.ai, Diffit
Week 4	P2	Mini Project 2 (Part 1): AT Case Analysis	Inquiry	Analyze assistive tech case studies related to your problem	UDL, AT evaluation	Immersive Reader, Read&Write
Week 5	P3	Mini Project 2 (Part 2): AT Design	Design	Create an accessible instructional tool addressing your problem	UDL design, accessibility	Google Docs Accessibility Tools
Week 6	P3	Mini Project 3 (Part 1): Game Evaluation	Design Exploration	Evaluate a game/tool aligned with your intervention goals	Assessment design, engagement	Kahoot, Quizizz

Week 7	P3	Mini Project 3 (Part 2): Game Adaptation	Prototype Development	Adapt tool into your intervention prototype	Instructional design, scaffolding	Same as above
Week 8	P3→P4	CURE Proposal Checkpoint	Milestone	Submit problem, research question, design plan; receive feedback	Research framing, communication	Google Docs
Week 9	P2	Mini Project 4: Ethics & Digital Citizenship	Ethical Framing	Analyze ethical/legal considerations relevant to your intervention	Ethics, policy awareness	Common Sense Media
Week 10	P3	Mini Project 5: VR/AR Exploration	Innovation	Explore emerging tech to enhance your intervention	Emerging tech integration	VR/AR tools
Week 11	P4	Final Project Prep 2: Pilot Planning	Pilot Design	Plan peer testing session and data collection	Basic research methods	Google Forms, Zoom
Week 12	P4	Mini Project 6: AI Integration	Pilot Enhancement	Refine intervention with AI before testing	Prompt design, personalization	ChatGPT, Copilot
Week 13	P4→P5	Pilot Testing + Presentations (Round 1)	Data Collection	Teach lesson, collect peer feedback/data	Teaching, observation	All tools
Week 14	-	Thanksgiving Break	-	-	-	-
Week 15	P5	Final Presentations + Reflection 2	Analysis & Dissemination	Present refined intervention and reflect on learning	Analysis, communication	-