Instructional Technology
Sample Syllabus

Course Description

This course is designed to support students in examining the use of instructional technology and AI in early childhood special education to support infants and young children with disabilities. Students will learn to design inclusive, technology-enhanced interventions, apply ethical and culturally responsive practices, and engage families through digital tools.

Course Learning Objectives

As a result of active participation and successful completion of course requirements, students will be able to:

1. Analyze and apply instructional technology frameworks (including UDL and developmentally appropriate practices) to design inclusive learning experiences for infants and young children with disabilities.
2. Evaluate and integrate AI tools (e.g., TeachFX, ToddlerTalk, MagicSchool.ai) for formative and summative assessment, lesson planning, and family engagement in early intervention and ECSE settings.
3. Critically examine ethical, cultural, and practical considerations related to technology use in early childhood programs, including issues of privacy, bias, accessibility, and equitable implementation.
4. Design a technology-enhanced intervention plan that embeds IFSP/IEP outcomes into daily routines and demonstrates effective collaboration with families and caregivers using digital tools.

Recommended Reading

CAST. (2018). Universal Design for Learning guidelines version 2.2. CAST. https://udlguidelines.cast.org

Center for Innovation in Digital Learning (CIDDL). (2023). AI tools for early childhood special education. CIDDL.org.

Center for Innovation in Digital Learning (CIDDL). (2024). Emerging trends in AI for early childhood special education. CIDDL.org.

Dunst, C. J., & Trivette, C. M. (2009). Capacity-building family-centered practices. Journal of Early Intervention, 31(1), 43–56. https://doi.org/10.1177/1053815108325303

Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. Harvard Data Science Review, 1(1). https://doi.org/10.1162/99608f92.8cd550d1

Foster, T. J., Justice, L., Gonzalez Villasanti, H., Irvin, D., & Messinger, D. (2024). Classroom Sensing Tools: Revolutionizing Classroom-Based Research in the 21st Century. Topics in Early Childhood Special Education, 44(3), 229-242. https://doi.org/10.1177/02711214231220800 (Original work published 2024)

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.

Kelly, E. M., Harbin, S. G., & Schwartz, I. S. (2023). Families' Experiences With Online Instruction and Behavior Support During COVID-19. Topics in Early Childhood Special Education, 44(2), 103-114. https://doi.org/10.1177/02711214231182023 (Original work published 2024)

National Association for the Education of Young Children (NAEYC). (2012). Technology and interactive media in early childhood programs: Position statement.

Oh-Young, C., & Karlin, M. (2025). Artificial Intelligence... In the Early Childhood Special Education Classroom!!?. TEACHING Exceptional Children, 57(5), 348-356.

Office of Special Education Programs (OSEP). (2022). Assistive technology guidance for IDEA.

Parette, H. P., & Blum, C. (2013). Instructional technology in early childhood: Teaching in the digital age. Early Childhood Education Journal, 40(1), 1–8. https://doi.org/10.1007/s10643-011-0499-0

Smith, S. J., & Okolo, C. M. (2010). Response to intervention and technology integration in early childhood special education. Topics in Early Childhood Special Education, 30(1), 10–21. https://doi.org/10.1177/0271121410363833

TeachFX. (2023). AI-powered feedback for educators: White paper. TeachFX.com.

The White House. (2022). Blueprint for an AI Bill of Rights. https://www.whitehouse.gov/ostp/ai-bill-of-rights

ToddlerTalk. (2023). Language modeling and engagement metrics: Research brief.

UNESCO. (2021). AI and education: Guidance for policy makers. UNESCO Publishing.

U.S. Department of Education. (2024). National Educational Technology Plan. https://tech.ed.gov/netp

Accommodations
Section 504 of the Rehabilitation Act of 1973 and the American with Disabilities Act of 1990 require the institution to provide academic adjustments or accommodations for students with documented disabilities. Students seeking academic adjustments or accommodations must self-identify with the Coordinator of Services for Students with Disabilities on the appropriate campus.

Attendance
Since many of the classes involve activities, videotapes, discussion, etc., regular attendance is vital to gain maximum benefit. Because this is an 8 weeks course, each class member needs to make every effort to be in attendance at each class. Anyone who misses more than one class will lose 5 points for each class missed after the first absence. Significant tardiness or early departure beyond 15 minutes will count as an absence. If you know ahead of time you will not be in class, please contact the instructor the day before the class.

Communicating with the Instructor

All correspondences from the instructor to the students by way of announcements, updates, assignments, and so forth, will be communicated via school email or online learning management system if not verbally in class. It is the student's responsibility to ensure their university e-mail is corrected, provided, and valid. Failure to do so may result is missing important information that could negatively impact your grade. Please be mindful of professionalism.

Course Outline

The following schedule is subject to change. For any course syllabuses posted prior to the beginning of the semester, the course instructor reserves the right to make changes prior to or during the semester. The course instructor will notify students, via e-mail or verbal announcements when changes are made in the requirements and/or grading of this course. ***The course instructor reserves the right to revise the schedule/assignments if needed.***

Week	Topics	Reading	Activities
1	Foundations of Instructional Technology in ECSE	Oh-Young & Karlin (2025); Parette & Blum (2013); CAST (2018)	**In-Class Activity**: Provide students with case studies (e.g., ToddlerTalk, TeachFX, etc.). Students will review and analyze real-world case studies showcasing technology integration in infant and toddler programs. They will identify the instructional strategies used, evaluate how these technologies support developmental outcomes and family engagement, and discuss implications for inclusive practice.
2	Understanding AI and Emerging Technologies	Holmes et al. (2019); CIDDL (2023)	**In-Class Activity**: Students will experiment with AI tools such as ChatGPT and MagicSchool.ai to understand their capabilities for lesson planning, language support, and family engagement in ECSE

			contexts. After exploring these tools, they will reflect on potential benefits, limitations, and ethical considerations for using AI with infants and young children with disabilities.
3	Policy, Standards, and Guidance	US DOE (2024); OSEP (2022); UNESCO (2021)	**In-Class Activity**: Students will examine key policy documents, including NETP 2024, OSEP Assistive Technology Guidance, IDEA requirements, and UNESCO frameworks on AI in education. The discussion will focus on equity and designing technology that is "born accessible." **Compliance Checklist**
4	Instructional Design with Technology	Smith & Okolo (2010); CAST (2018)	**In-Class Activity:** In small groups, to redesign their case study using AI tools (e.g., MagicSchool.ai for lesson planning or Canva Magic for visual supports) and present their revised approach in the next class.
5	AI for Assessment and Data Collection	Foster et al. (2023); TeachFX (2023); ToddlerTalk (2023)	**Simulating AI-Supported Observation and Feedback in ECSE**
6	Family Engagement and Home-Based Supports	Dunst & Trivette (2009); NAEYC (2012); Kelly et al. (2023)	**In-Class Activity:** In small groups using a case study, students will design a family-centered intervention plan that leverages technology. Identify two daily routines where developmental

			strategies can be naturally embedded. Select an appropriate technology tool, such as MagicSchool.ai for creating caregiver guides, Canva for visual supports, or AI translation tools for multilingual families. Create a family-friendly resource, such as a visual schedule, coaching script, or short video demonstration, aimed at supporting caregivers in implementing intervention strategies at home.
7	Professional Practice and Ethical Use	White House (2022); Floridi & Cowls (2019)	**Discussion Prompts**: Consider the readings, how do we address teacher concerns: plagiarism, bias, privacy? How do we prepare families and educators for responsible AI use? Should AI be integrated into early childhood classrooms?
8	Future Directions	Center for Innovation in Digital Learning (CIDDL). (2024). Emerging trends in AI for early childhood special education. CIDDL.org.	**Presentation**

Major Assignments
1. **Compliance Checklist**
    a. Students will create a comprehensive compliance checklist that can be used by educators or program administrators to evaluate whether technology-based interventions meet federal, state, and professional guidelines for infants and young children with disabilities.
    b. Identify Applicable Standards and Policies

  i. Review and summarize key documents:
    1. IDEA Part C and Part B requirements
    2. OSEP Assistive Technology Guidance
    3. National Educational Technology Plan (NETP 2024)
    4. AI Bill of Rights and Executive Order on AI
    5. NAEYC and DEC position statements on technology use
  ii. Include citations and links for each source.
  iii. Create a 1-page summary of standards and their relevance to EI/ECSE technology use.

 c. Develop Compliance Categories
  i. Your checklist should include at least 6 categories, such as:
    1. Accessibility & UDL (e.g., Does the technology support multiple means of engagement, representation, and expression?)
    2. Privacy & Data Security (e.g., Does the tool comply with FERPA and IDEA confidentiality requirements?)
    3. Cultural & Linguistic Responsiveness (e.g., Does the technology support family's preferred language?)
    4. Alignment with IFSP/IEP Goals (e.g., Are objectives individualized and measurable?)
    5. Ethical AI Use (e.g., Is bias minimized? Are families informed about AI involvement?)
    6. Family Engagement (e.g., Does the technology provide clear instructions and empower caregivers?)

 d. Create the Checklist Tool
  i. Format: Table or structured document with criteria, yes/no indicators, and space for notes.
  ii. Include at least 3–5 specific items per category.
  iii. Provide examples of how each item would be evaluated in practice (e.g., screenshots, mock scenarios).

2. **Simulating AI-Supported Observation and Feedback in ECSE**
 a. Students will explore how AI tools can be used for formative and summative assessment in early childhood special education by simulating an observation and generating feedback using AI-supported platforms.
 b. Select a Scenario
  i. Choose a real or hypothetical early intervention or center-based session involving infants or toddlers with disabilities. Include details such as setting, developmental goals, and interaction context.
 c. Simulate Observation Using AI Tools
  i. Use TeachFX or similar AI-based feedback tools to analyze teacher-child interactions (or review sample data provided by the instructor).
  ii. Explore ToddlerTalk metrics for language modeling, engagement, and emotional support.
 d. Analyze and Document Findings

      i. Identify at least three high-leverage practices observed and how AI tools captured them.

      ii. Discuss formative vs. summative assessment implications of the data.

      iii. Reflect on ethical and practical considerations (privacy, bias, data security, family consent).

  e. Observation Report

      i. Summary of the session and AI-generated insights.

      ii. Comparison of AI feedback vs. traditional observation methods.

      iii. Recommendations for improving teacher practices based on AI data.

3. **Presentation - Designing an AI-Enhanced Instructional Technology Solution**

  a. Students will create a comprehensive instructional technology solution that integrates AI tools and evidence-based practices to support developmental outcomes for infants and young children with disabilities in home, community, or center-based settings.

  b. Context and Needs Analysis

      i. Identify a specific setting (home, community, or center-based).

      ii. Describe the population (age range, disability category, cultural/linguistic considerations).

      iii. Conduct a brief literature review on technology use in ECSE (include at least 3 sources from CIDDL or related research).

      iv. Create a 2–3 page report summarizing context, needs, and rationale for technology integration.

  c. Instructional Design Plan

      i. Develop SMART objectives aligned with IFSP/IEP outcomes.

      ii. Apply UDL principles and ensure accessibility.

      iii. Select appropriate AI or tech tools (e.g., MagicSchool.ai for lesson planning, TeachFX for feedback, Canva Magic for visuals).

      iv. Include ethical considerations (privacy, bias, family engagement).

      v. Create a detailed lesson/activity plan with tech integration and justification.

  d. Prototype or Simulation

      i. Create a mock-up or simulation of the technology-supported activity:

         1. Example: AI-generated visual supports for routines, interactive language prompts, or caregiver coaching scripts.

      ii. Demonstrate how the tool will be used by educators and/or families.

      iii. Create a video walkthrough or interactive presentation (5–7 minutes).

  e. Evaluation and Reflection

      i. Design an assessment strategy for measuring child engagement and developmental progress (include formative and summative components).

      ii. Reflect on challenges, ethical issues, and scalability.

      iii. Create a 2-page reflection and evaluation plan.

  f. Presentation

      i. Include:

         1. Problem statement

2. Tech solution overview
3. Prototype demonstration
4. Key takeaways and future directions

Course Grading

Assignments are due by 11:59pm on the indicated date. Late assignments without previous written approval of the instructor will incur a 50% penalty for the first time and lost all points beyond. This instructor and learners are required to adheres to the University's Academic Integrity policy. Any plagiarism will not be tolerance and referred to the Academic Integrity Office. And the learners will be given an "F" in the course and be recommended to the Student Conduct Office.

Learners will be evaluated based upon the assignments described below. The plus/minus grading system and scale is as follows:

Letter Grade	Grade Range
A	93 and above
A-	90-92
B+	88-89
B	83-87
B-	80-82
C+	78-79
C	73-77
C-	70-72
D	60-69
F	59 and below

Course Grading Systems

Component	Weight for final grade
Compliance Checklist	20%
AI-Supported Observation and Feedback	30%
In-class activity	20%
AI-Enhanced Instructional Technology Solution	30%

Resources
<Hyperlink to CIDDL PDF>

Journals in EI/ECSE

Below are examples of journals that publish topics about EI/ECSE. Faculty may want to explain how to use articles to support practice and to examine current research. Clarify the difference between practitioner-based journals and research-based journals.

- *Child Development*
- *Journal of Early Intervention*
- *Journal of Pediatrics*
- *Journal of Intellectual & Developmental Disability*
- *Journal of Developmental and Physical Disabilities*
- *Journal of Pediatric Nursing*
- *International Journal of Early Childhood Special Education*
- *Pediatric Research*
- *Topics in Early Childhood Special Education*
- *Young Exceptional Children*